THE PSYCHOLOGICAL, PSYCHIATRIC AND PSYCHOPHYSIOLOGICAL CORRELATES OF SELF-MUTILATION II

CHAPTER ELEVEN
SELF-MUTILATION AND COGNITIVE DYSFUNCTION, COPING AND PROBLEM-SOLVING

11. SELF-MUTILATION AND COGNITIVE DYSFUNCTION, COPING AND PROBLEM-SOLVING.

From the previous chapter it is apparent that self-mutilative behaviour, while associated with excessive psychopathology, is not necessarily a symptom of a specific disease or disorder. It may manifest itself in conjunction with a wide range of symptomatology and, indeed, may occur more frequently in the presence of specific symptoms. However, the behaviour itself must be treated as a separate entity if a full understanding of the self-mutilation is to be achieved.

Of course, not all individuals who display the symptoms that occur in conjunction with self-mutilation engage in self-mutilative behaviour. There must be one or more factors apart from psychopathology that influence the occurrence of the behaviour. A number of possibilities present, representing a cognitive influence on the adoption of self-mutilation in a behavioural repertoire.

Firstly, the individual's view of the world or belief system may make self-mutilation an acceptable behaviour despite the fact that societal norms proscribe against the behaviour (Walsh & Rosen, 1988). An examination of the cognitive distortions or irrational beliefs of self-mutilators may provide a profile of the cognitive pattern associated with self-mutilative behaviour.

Secondly, self-mutilation may be added to the behavioural repertoire because the individual lacks other, more adaptive means of coping with the effects of the psychopathology they experience or the effects of daily life events. There is some indication in the literature that this is the case (see Walsh & Rosen, 1988). Indeed, a general theme in the self-reports of self-

mutilators is that the performance of the behaviour relieves the individual of negative affect (e.g., Favazza & Conterio, 1989). An examination of the range of coping strategies available to self-mutilators would clarify this point.

A third alternative is that individuals who engage in self-mutilative behaviour do so because they lack the means or ability to problem-solve. When experiencing a negative life event, these individuals may not have the skills to generate potential solutions to the problem situation, to compare the efficacy of these solutions or to apply the potential solutions to real life problems. If this is the case, self-mutilative behaviour may be understood as behaviour performed in reaction to the frustration experienced because of the inability to solve life problems.

Each or all of these variables may influence self-mutilative behaviour. It is beyond the scope of the following review to provide an in depth analysis of each of these areas. The following chapter aims to outline the areas of investigation and postulate the nature of the relationship between these factors and self-mutilative behaviour.

11.1 Self-mutilation and cognitive dysfunction

11.1.1 Irrational beliefs

A conceptually simple model has been proposed to account for a wide range of psychological disturbance (Ellis, 1984). It was hypothesised that it was irrational self-talk and negative evaluation that led to psychological disturbance (Ellis & Harper, 1975). Simply put, the model holds that when faced with an activating event (A), an individual will experience an emotional

consequence (C). However, it is not A that causes C. The link between A and C is mediated by the individual's interpretation of A; that individual's belief system (B) (Ellis, 1962). It has been defined as a cognitive-affective behavioural theory with "thought normally including and being sparked by some degree of desire or feeling and with feeling significantly including cognition" (Ellis, 1984, p.196).

A large proportion of the variance of irrationality may be accounted for by what would be termed normal functioning (Forman & Forman, 1979). However, a substantial proportion of that variance would be accounted for by psychological processes that are of clinical significance and produce disturbed behaviour. Ellis formulated ten irrational beliefs commonly held by patients exhibiting a wide range of symptoms (Ellis & Harper, 1975). While there are many other beliefs that can been identified as irrational and causing distress, these ten beliefs form the basis of Ellis' work.

11.1.2 Irrational beliefs or logical errors

There are two prominent theorists in the area of cognitive dysfunction, Ellis (see Ellis & Harper, 1975) and Beck (see Beck, 1967). While investigating the same area, the nature of their approaches substantially differ (Lewinsohn, Larson & Munoz, 1982). The major difference between the two formulations is that Ellis identified irrationality of thought content - a thematic approach, whereas Beck referred to the nature of thought form - a structural approach (Davison & Neale, 1994).

As stated previously, Ellis described cognitive distortion in terms of irrationality (Ellis & Harper, 1975). Beck (1967) adopted illogicality to define

his interpretation of cognitive dysfunction. Illogical cognitions relate to the cognitive triad, the patterns of thinking related to the self, the world and the future that predispose an individual to depression (Beck, 1967; Beck, Rush, Shaw & Emery, 1979). Depressed people are believed to distort information from the environment in a negative way. Whereas Ellis identified ten irrational beliefs that predispose individuals to psychopathology (Ellis, 1984), Beck identified a number of types of illogical cognitions that were maladaptive. These included overgeneralising, selective abstraction, excessive responsibility, assuming temporal causality, self-references, catastrophising and dichotomous thinking (Beck, 1967).

At the most superficial level, differences in the type of psychopathology caused by the two types of cognitive dysfunction have been identified. Irrational beliefs have been linked to elevated levels of anxiety and illogical cognitions with elevated levels of depression (Lohr & Bonge, 1981).

Validation of the two theories has been problematic because of difficulties with measurement of the two constructs (Lohr & Bonge, 1981). While methods of assessment have been developed for both categories of cognitive dysfunction (e.g., Hollon & Kendall, 1980), research efforts more commonly have been directed at the assessment of irrational beliefs (Cash, 1984; Jacobsen, Tamkin & Hyer, 1988; Lohr & Bonge, 1981; Malouff & Schutte, 1986; Smith & Zurawski, 1983; Thyer, Miller, Gordon & Papsdorf, 1982; Zgourides & Warren, 1988).

It is possible that a common cognitive mechanism underlies both categories of cognitive dysfunction. To test the possibility of a common cognitive mechanism, the relationship between irrational beliefs, illogical

beliefs and levels of anxiety was examined (Lohr & Bonge, 1981). Results demonstrated that the relationship between cognitive dysfunction and anxiety was almost entirely accounted for by the correlation between trait anxiety and the score on the measure of irrational beliefs. While all correlations in the analysis were significant, it was the link between irrational beliefs and trait anxiety that defined the relationship. The conclusion, therefore, was that the constructs of irrational beliefs and illogical cognitions are distinct formulations, measuring different aspects of dysfunctional thinking.

Each formulation has merit and each is applicable in a clinical setting (Hawton, Salkovskis, Kirk & Clark, 1989). A decision was made to examine the irrational thinking of self-mutilators rather than their illogical cognitions because of the particularly extensive research base of the former.

11.1.3 Correlates of irrational beliefs

Few researchers have investigated potential sex differences in the endorsement of irrational beliefs. One study demonstrated males to have more strongly endorsed the Demand for Approval subscale of the Irrational Beliefs Test. This subscale examines such beliefs as "It is an absolute necessity for an adult to have love and approval from peers, family and friends". In addition, there was a trend for the total irrationality score to be related to depression scores as measured by the Beck Depression Inventory for males but not for females (Nelson, 1977). In addition, no substantial differences in irrationality were evident between older and younger psychiatric inpatients (Hyer, Jacobsen & Harrison, 1985).

In the above study, subscale scores of the Irrational Beliefs Test were correlated with scores on the Beck Depression Inventory to determine the classes of maladaptive cognitions associated with depressive symptomatology (Nelson, 1977). The highest correlations were evident for high self-expectations (You must be unfailingly competent and almost perfect in all you undertake), frustration reactivity (It is horrible when things are not the way you would like them to be), anxious overconcern (You should feel fear or anxiety about anything that is unknown, uncertain or potentially dangerous), and helplessness (The past has a lot to do with determining the present), in addition to general irrationality as determined by the total scale score.

A comparison was made of the irrationality of a group of normal controls, a group who reported being psychologically distressed and a group who reported both psychological distress and depression (LaPointe & Crandell, 1980). In terms of general irrationality, the depressed group were significantly more irrational than both other groups and the distressed group scored higher on measures of irrationality than did the normal control group. Significant differences between groups were evident for a number of individual irrational beliefs: approval, high self-expectations, blame proneness, frustration reactivity, emotional irresponsibility, anxious overconcern, problem avoidance, dependency, helplessness and perfectionism. On most of these measures, the depressed and psychologically distressed only groups obtained a score indicative of significantly more irrationality than the normal controls. The irrational beliefs that distinguished the depressed group from both others groups included

frustration reactivity, high self-expectations, emotional irresponsibility and avoidance.

As indicated in the previously reviewed study (LaPointe & Crandell, 1980), individuals with high levels of psychological distress reported significant levels of irrationality. Indeed, holding irrational beliefs more commonly is associated with elevated levels of anxiety (Lohr & Bonge, 1981). This relationship holds for both situation-specific and generalised anxiety (Sutton-Simon & Goldfried, 1979). Correlational data has indicated associations between irrationality and social-evaluative anxiety such as speech, test and social anxiety (Goldfried & Sobocinski, 1975; Himle, Thyer & Papsdorf, 1982; Sutton-Simon & Goldfried, 1979). The strongest correlations have been demonstrated between irrationality and trait-anxiety (Gitlin & Tucker, 1988; Himle et al., 1982; Lohr & Bonge, 1981).

A significant correlation has been demonstrated between general irrationality and external locus of control (Wright & Pihl, 1981). Significant correlations also existed between external locus of control and demand for approval, frustration reactivity, anxious overconcern, dependency and helplessness.

Endorsement of irrational beliefs also has been linked to elevated levels of anger and hostility (Ellis, 1962). Indeed, modification of irrational beliefs has been demonstrated to ameliorate levels of emotional distress including anger (Hamberger & Lohr, 1980).

It is possible that certain patterns of irrational thinking (or certain clusters of irrational beliefs) predispose an individual to a particular type of emotional distress. That is, certain irrational beliefs may be more associated with one

type of psychological response than another (Lewinsohn et al., 1982). Some support for this proposition was reported. In one study (Zwemer & Deffenbacher, 1984), anger was best predicted by irrational beliefs related to personal perfection, anxious overconcern, blame proneness and catastrophising, and the relationship between these irrational beliefs and anger was most marked for those subjects with extremely high levels of anger. The irrational beliefs related to anxious overconcern, personal perfection, catastrophising and problem avoidance were most related to high levels of anxiety. Considerable overlap was evident in these results. It is possible that a core set of irrational beliefs predict psychological distress in general, and a smaller number of specific irrational beliefs predict particular psychological symptoms. In another study, while general irrationality was related to a variety of forms of social-evaluative anxiety, increased levels of anxiety and hostility in situations of perceived social rejection were demonstrated to be associated with the irrational belief related to the necessity of receiving approval from others (Goldfried & Sobocinski, 1975).

The overall effect of the endorsement of irrational beliefs may be to increase general psychological distress. Some support for the proposition has been provided. Two irrational beliefs, the necessity of approval from others and the necessity of a perfect performance, have been demonstrated to be related to increased psychological distress (Smith, Houston & Zurawski, 1984). However, the relationship existed only for these two beliefs and only for one measure of psychological distress. In addition, there was no interaction between groups of high and low distress and groups who endorsed or did not endorse irrational beliefs.

The role of irrational beliefs may be to moderate the relationship between two other variables. That is, the endorsement of irrational beliefs may increase the vulnerability of the individual to adverse effects of a negative life event. However, the endorsement of irrational beliefs was determined not to influence the relationship between life change and psychological distress. Instead, the influence was on the relationship between life change and physical distress (Smith, Boaz & Denney, 1984). This result was contrary to a review of the literature that indicated that the endorsement of irrational beliefs was associated with negative, ruminative cognitions and not psychophysiological arousal (see Smith, Houston & Zurawski, 1984 for review).

11.1.4 Irrational beliefs and self-mutilation

Little information is available regarding the irrational beliefs and attitudes of self-mutilators. Walsh and Rosen (1988) provided their conception of a cognitive approach to self-mutilative behaviour. Their overview is the most comprehensive and is worthy of summary here.

They provide four categories of illogical or irrational thoughts that lead an individual to engage in self-mutilative behaviour. The first of these is that the self-mutilator must believe, either consciously or unconsciously, that the behaviour is acceptable. The behaviour is necessary to provide some advantage or benefit. This belief has been incorporated into the value system of self-mutilators and as with any other value, it controls the behaviour of those who hold it.

The second category of thought is that self-mutilators believe themselves and their bodies to be disgusting and deserving of the punishment inflicted for them to engage in the behaviour. Many of the self-critical thoughts of self-mutilators relate to their body image or body perception. In this way, their bodies become the target of any negative feeling they experience. The belief that they are deserving of self-injury is a consequence of a general feeling of self-hate. This cognitive style is closely linked with poor self-esteem.

The third category of dysfunctional thought that leads to self-mutilative behaviour is that self-mutilators believe that, when experiencing negative emotions, some action is necessary to reduce that unpleasant state. To alleviate these feelings, these individuals engage in a range of self-defeating behaviour, only one of which is self-mutilation. The literature is rife with descriptions of self-mutilators as being substance abusers, promiscuous, delinquent and aggressive (e.g., Brittlebank et al., 1990; Evans & Lacey, 1992; Gossop et al., 1975; Graff & Mallin, 1967; Grunebaum & Klerman, 1967; Lion & Conn, 1982; Maloney et al., 1987; Pao, 1969; Robinson & Duffy, 1989; Schwartz et al., 1989; Simeon et al., 1992; Simpson, 1976; Yesavage, 1983). All of these behaviours may represent attempts to relieve negative feelings. Unpleasant emotions escalate to a point where action needs to be taken. With the belief that self-mutilation is acceptable and that the body is disgusting and deserving of punishment, it is a natural progression that the action performed to reduce negative affect is in the form of self-injury. This process is encouraged by the knowledge that the action of self-mutilation will result in tension reduction (Favazza & Conterio, 1989; Graff & Mallin, 1967; Grunebaum & Klerman, 1967; Lion & Conn, 1982; Pao, 1969; Rosenthal et al., 1972; Simpson,

1976; van Moffaert, 1990; Walsh & Rosen, 1988).

The final category of dysfunctional thought is the belief that some action on the part of the self-mutilator is needed to communicate their feelings to others. The belief is held by self-mutilators that others will not understand the depth and distressing nature of their feelings unless some action is performed to demonstrate this. Self-mutilators do not comprehend the lack of action in non-mutilators.

Walsh and Rosen (1988) contend that it is these thought patterns that precipitate and maintain self-mutilative behaviour. While this formulation provides the possible cognitive distortions necessary for an individual to engage in self-mutilative behaviour, there have been no investigations of types of irrational thinking as measured by available psychometric instruments that are characteristic of self-mutilators.

11.2 Self-mutilation and coping

11.2.1 Coping

An increase in research of how individuals deal with stress was encouraged by the fact that although a consistent relationship existed between stressful life events and psychological adjustment, this association was modest (see Johnson & Sarason, 1978; Rabkin & Struening, 1976 for reviews). It was increasingly apparent that it was the way in which an individual coped with stressful life events that influenced psychological adjustment (Aldwin & Revenson, 1987). As such, coping has been defined as the effort, both cognitive and behavioural, that an individual makes to control, withstand or decrease

the demands that extend or exceed personal resources (Aldwin & Revenson, 1987; Cohen & Lazarus, 1979; Lazarus, 1984; Moos & Billings, 1982; Pearlin & Schooler, 1978).

The conceptualisation of the coping process and the measurement of coping strategies have been the subject of some controversy (Kessler et al., 1985). These areas have been reviewed elsewhere (see Haan, 1982; Moos & Billings, 1982). The way coping is conceptualised and measured is dependent on the view taken by the investigator (Aldwin & Revenson, 1987). For example, many factors may influence the quality of coping in any one individual. The relative importance given to each of these factors will influence the way in which coping is conceptualised. These factors may include personality traits (Allred & Smith, 1989; Contrada, 1989; Kobasa, 1979); demands of a specific situation or role (Pearlin & Schooler, 1978); or cognitive appraisal (Folkman & Lazarus, 1980, 1985; McCrae, 1984).

In general, two major approaches to the conceptualisation of coping have been posited. The first views coping as a dispositional trait or as a well entrenched preference for dealing with problems in a particular way. An example of the latter would be the maladaptive coping strategy of denial (Kessler et al., 1985). The second view conceptualises coping strategies as variable and transient, adopted depending on the demands of a specific problem (e.g., Folkman & Lazarus, 1980; Pearlin & Schooler, 1978).

This second view is a result of the belief that coping behaviour changes across time and situation (Kessler et al., 1985). However, little research has been directed towards the determination of cross-situational consistency. A ten year follow-up of women initially assessed while awaiting breast biopsy

demonstrated stability of coping style (Gorzynski, Holland, Katz, Weiner & Zumoff, 1980). However, coping style was assessed by a psychiatrist and not a standardised measurement instrument. Consistency of the adoption of specific coping strategies was reported for similar problems at different points in time. However, no consistency was reported across different types of life situations (Folkman & Lazarus, 1980) or across problems arising from different roles such as work and marriage (Pearlin & Schooler, 1978).

There also is disagreement regarding the extent to which individuals are aware of the coping strategies they adopt (Kessler et al., 1985). Generally, it is assumed that accurate identification of coping strategies can be made (e.g., Billings & Moos, 1981; Folkman & Lazarus, 1980). Working on this assumption, self-report instruments to measure the coping process have been developed (e.g., Folkman & Lazarus, 1985; Tobin, Holroyd & Reynolds, 1984). However, this approach has come under some criticism (e.g., Haan, 1982; Horowitz & Wilner, 1980; Ray, Lindop & Gibson, 1982). The alternative view holds that coping is not amenable to usual methods of assessment. Because coping efforts are deemed not to be deliberate or conscious, it has been suggested that more projective assessments of the coping process are warranted. However, comparisons between self-report and projective methods are few (Haan, 1982; Stone & Neale, 1982). While there exists little empirical evidence in favour of either method (Kessler et al., 1985), the majority of studies employ self-report measures.

A large variety of individual coping strategies have been identified. Investigations have been conducted of such coping strategies as active-problem solving, distraction, tension reduction, the use of humour as a

means of coping and the seeking of information (Kessler et al., 1985). Attempts have been made to conceptualise or categorise these coping strategies and these attempts have been reviewed elsewhere (see Moos & Billings, 1982). In general, there is no typology that has been widely accepted (Aldwin & Revenson, 1987; Kessler et al., 1985). However, three elements are shared by most categorisations. These include the direct alteration of the problem, the alteration of the individual's interpretation of the problem, and dealing with the emotional response to the problem situation (Pearlin & Schooler, 1978). These types of coping strategies can be applied to a problem sequentially or simultaneously (Kessler et al., 1985). Indeed, any one of these coping strategies may suffer in favour of another (Lazarus & Launier, 1978).

Despite the identification of a wide range of coping strategies, there is little to recommend the effectiveness of one over another (Aldwin & Revenson, 1987). From the limited research investigating the outcome of coping, the results have been inconsistent. A number of studies have recommended problem-focused coping strategies over emotion-focused coping strategies for the alleviation of the emotional distress associated with problem situations (Felton & Revenson, 1984; Mitchell & Hodson, 1983). However, the opposite pattern has been reported (Baum, Fleming & Singer, 1983). A further study reported no effect on emotional distress of problem-focused coping strategies (Menaghan, 1982). In this case, problem-focused coping functioned to decrease future problems.

What is apparent from the literature is that, when divided into the broad categories of problem-focused and emotion-focused coping strategies, these types of strategies have differential effects on psychological adjustment.

The weight of evidence indicates that problem-focused coping generally has been identified as having a more positive effect on psychological adjustment than emotion-focused coping (Folkman & Lazarus, 1980; Moos & Billings, 1982; Pearlin & Schooler, 1978). While it is better to have a varied repertoire of coping strategies available so that the appropriate strategy can be selected to fit the problem situation, it has been determined that use of emotion-focused coping alone leads to psychological maladjustment (Mitchell, Cronkite & Moos, 1983).

An alternative line of research has investigated the coping resources available to the individual. Coping resources have been understood to be another mediating variable that influences the relationship between stress and psychological adjustment. Contrary to most research in this area, the concept of coping resources focuses on competencies rather than solely on deficits (Hammer, 1988).

Coping resources can take a variety of forms but can be divided into two broad categories: resources that reflect intrapersonal functioning or attitudes, an example of which would be locus of control; and resources that are available to the individual but are external to that individual, such as social support (Anson, Carmel, Levenson, Bonneh & Maoz, 1993).

The relative importance of internal or external coping resources has been subjected to little research scrutiny (Anson et al., 1993). In terms of diversity of stressors, social resources were demonstrated to provide a greater buffering effect than personal resources (Lin & Ensel, 1989). This is not to say that personal resources had no effect. Indeed, personal resources adequately buffered the individual from the effects of psychological stressors.

The point that differentiated the two types of coping resources was the fact that social resources provided a buffering effect for both social and psychological stressors.

However, it may be that external resources are not universally superior to personal resources. Indeed, there may be substantial individual differences in the ability to activate external resources (Cummins, 1988; Lefcourt, Martin & Saleh, 1984; Sandler & Lakey, 1982). The quality of the personal resource may directly influence the ability to access and utilise external resources.

A comparison was made of the moderating effect of personal and external coping resources on the influence of recent life events (Anson et al., 1993). The external resource was defined as membership of and participation in a religious community. The control group subjects were members of a similar group without the religious affiliation. Religious group membership did not provide any buffering effect against recent life events over and above membership in a close community. Indeed, personal resources were identified as having a greater impact on the reaction to recent life events. In addition, there was no additive effect of the personal and external coping resources.

To this point, the effect or influence of coping resources has been discussed in terms of the buffering effect they provide. However, while relationships existed between personal and external resources and occupational stress, job strains and health, there was no evidence for a buffering effect at all (Israel, House, Schurman, Heaney & Mero, 1989).

11.2.2 Coping research

The focus of most coping research is the question of whether differences in psychological adjustment can be accounted for by differences in the use of coping strategies (Aldwin & Revenson, 1987; Kessler et al., 1985). Three approaches have been used in the investigation of this relationship. These include the investigation of coping strategies of normal populations (Aldwin & Revenson, 1987; Billings & Moos, 1987; Folkman & Lazarus, 1980; Mearns, 1991; Pearlin, Lieberman, Meneghan & Mullen, 1981; Pearlin & Schooler, 1978; Stern, Norman & Komm, 1993; Stone & Neale, 1984); consideration of the coping processes of psychiatric populations (Billings & Moos, 1984; Coyne, Aldwin & Lazarus, 1981; Folkman & Lazarus, 1986; Meichenbaum & Jaremko, 1983; Mitchell et al., 1983; Vitaliano et al., 1987) and comparisons of the coping strategies employed by individuals faced with the same adverse life event (Berman & Turk, 1981; Burgess & Holmstrom, 1979; Collins, Baum & Singer, 1983; Rosenthal & Roth, 1981; Videka-Sherman, 1982).

The literature relating to the use of coping strategies in these three areas is vast. It is beyond the scope of this chapter to review this literature. Nor is it warranted. Self-mutilators could not be described as a normal population. In addition, although there is some similarity in the nature of the precipitants of self-mutilative acts (Feldman, 1988a; Grunebaum & Klerman, 1967; Novotny, 1972; Rosenthal et al., 1972; Simpson, 1975, 1976), self-mutilators by no means experience the same specific life events. Given the nature of the population, it is more appropriate to review the literature pertaining to psychiatric samples.

There is no clear indication in the literature whether coping strategies play a part in the onset of a psychiatric disorder, are a feature of the disorder, or influence the maintenance of the disorder. However, coping strategies do appear to influence the course of the disorder (Kessler et al., 1985). That is, the course of a disorder will be prolonged if an individual employs poor coping strategies or the course will be shortened if adaptive and effective coping strategies are included in any therapeutic intervention (Meichenbaum & Jaremko, 1983).

In general, the coping strategies of depressed subjects have been demonstrated to be characterised by negative self-preoccupations that interfere with the individual's ability to effectively and decisively resolve problem situations (Kessler et al., 1985). Indeed, it has been suggested that the difference between depressed and nondepressed individuals is the nature of their coping. Compared with nondepressed controls, depressed subjects were more likely to employ wishful thinking as a coping strategy, to postpone action until more information was available, and to require more informational and emotional support (Coyne et al., 1981). Their coping is characterised by emotional discharge (Billings & Moos, 1984).

Differences in the preference for problem-focused coping by depressed and nondepressed subjects has been reported (Folkman & Lazarus, 1986). Depressed individuals have been demonstrated to employ fewer active, problem-focused coping strategies than nondepressed (Billings & Moos, 1984). A comparison was made of the type of coping strategies used by depressed subjects with those of their spouses and nondepressed matched subjects and their spouses (Mitchell et al., 1983). The depressed subjects were demonstrated

to engage in proportionately less problem-focused coping and more emotion-focused coping than all comparison subject groups. In addition, they experienced more life stress than other groups. Therefore, they were the group least well prepared to cope with the excessive stress they experienced. The spouses of the depressed subjects experienced considerably more chronic stress than did the nondepressed controls and their spouses, but were better equipped to deal with this as evidenced by the greater use of problem-focused coping strategies and the lower levels of depression when compared with their spouses.

In comparing subject groups with panic disorder, simple panic and no panic, differences in coping were evident (Vitaliano et al., 1987). With reference to the individual subject's current major stressor, the panic disorder group scored lower on a measure of problem focused coping and higher on a measure of wishful thinking as a coping strategy than did the no panic group. In addition, the diminished use of problem focused coping distinguished the panic disorder group from the simple panic group. Further, elevated levels of depression were related to reduced problem focused coping and increased wishful thinking. The relationship between levels of depression and these types of coping strategies has been reported elsewhere (Billings & Moos, 1984; Coyne et al., 1981). Indeed, an extensive review of the literature found consistent evidence for a negative relationship between problem-focused coping and distress and a consistent positive relationship between wishful thinking and distress (Vitaliano et al., 1986).

11.2.3 Coping and self-mutilation

One problem that largely has been ignored when discussing the conceptualisation of coping is the potential overlap between coping strategies and psychological symptoms (Dohrenwend, Dohrenwend, Dobson & Shrout, 1984). It has been argued that it is necessary to conceptually separate the strategies adopted to cope with a problem situation and the influence these strategies have on psychological adjustment (Horowitz, 1979). However, it is often the case that no clear distinction can be made between the method chosen to cope with a problem and psychological symptomatology (Kessler et al., 1985).

Such is the case with self-mutilative behaviour. It has been suggested that self-mutilators adopt the behaviour because they have no other means of coping with problem situations (see Ross & McKay, 1979; Walsh & Rosen, 1988). In this sense, self-mutilation can best be described as a coping strategy. Alternatively, self-mutilation has been described as a symptom of a psychological disorder that has its genesis in deficient coping skills (Fruensgaard & Flindt Hansen, 1988; Lion & Con, 1982; Schaffer et al., 1982; van Moffaert, 1990). This point was addressed in the chapter on psychopathology.

The literature to date has indicated that self-mutilative behaviour fits with either option. However, there seems to be more support for the description of the behaviour as a maladaptive coping strategy. For example, there are many reports in the literature describing self-mutilative behaviour as a means of ending or alleviating stress and distress experienced by the mutilator (e.g., Graff & Mallin, 1967; Grunebaum & Klerman, 1967; Lion &

Conn, 1982; van Moffaert, 1990). In this way, it is not difficult to conceptualise self-mutilative behaviour as a coping strategy. Self-mutilative behaviour also has been reported as a feature of the child sexual abuse accommodation syndrome (Summit, 1983). Sexually abused children may engage in self-mutilative behaviour as a means of coping with the ongoing reality of an intolerable situation. In both these cases self-mutilative behaviour is used to alleviate emotional distress in an effort to enhance psychological adjustment. The fact that non-mutilators find it difficult to appreciate the behaviour as a coping strategy is irrelevant.

It is apparent in the literature that no single coping strategy is effective in all situations (see Kessler et al., 1985 for review). However, if self-mutilative behaviour is accepted as a coping strategy, it is likely that self-mutilators apply this coping strategy in many problem situations. This would indicate that they have no effective and adaptive coping strategies in their coping repertoire. Alternatively, it may be that the alternative coping strategies they do have available are less effective than self-mutilative behaviour. These questions are yet to be addressed in the literature.

11.3 Self-mutilation and problem-solving

11.3.1 Problem-solving

The ability to solve both novel and everyday problems has been linked with adequate psychological adjustment (Spivack, Platt & Shure, 1976). Emotional or psychological disturbance in many instances can have its origins in poor ability to solve situational problems (D'Zurilla & Goldfried, 1971). It

is necessary to adapt to a wide range of novel problem situations. It is not enough to know how to solve specific problems, but to understand the nature of the problem solving process (D'Zurilla & Goldfried, 1971; Spivack et al., 1976).

Problem situations may originate in the external environment (D'Zurilla & Goldfried, 1971). External influences such as the availability of material or social resources impact upon the problem-solving process (Spivack et al., 1976). More commonly, problem situations involve the interaction of external environmental situations and the individual's reaction or emotional response to the situation (D'Zurilla & Goldfried, 1971). Nor is a problem situation necessarily a time limited event. A complex situation may develop over an extended period of time and may include a number of problem situations (D'Zurilla & Goldfried, 1971; Spivack et al., 1976). The more complex the problem situation, the more demanding is the problem-solving process.

Different conceptualisations of the problem-solving process have been formulated. Many aspects of these formulations overlap but all agree that the problem-solving process involves a multitude of skills that operate in combination to provide an effective solution to a problem (Spivack et al., 1976). Two examples will be given.

Five stages in the problem-solving process have been identified (D'Zurilla & Goldfried, 1971). These stages exist despite individual differences in the performance of, or level of problem-solving ability. These stages will be briefly outlined. The first stage refers to the general orientation of the individual which includes set and attitudinal factors. The general orientation

refers to the way in which an individual approaches a problem and this can influence the way in which he or she will respond to the situation. A number of factors are associated with independent problem-solving behaviour. These include: (a) an attitude that accepts that problems are a part of life and that it is possible to adequately and effectively deal with these situations; (b) an attitude that allows the individual to recognise problem situations as they occur; and (c) an attitude that decreases the likelihood of impulsive responding to or avoidance of the problem situation.

The second stage involves problem definition and formulation. In laboratory studies, subjects are expected to solve problems that are highly structured, instructions are standard, and expectations are defined. Real-life problems lack this structure. Individuals are faced with uncertainty, lack information and direction and have only vague notions of the goals for the problem-solving process. Therefore, if the problem has been adequately identified, the individual must then apply operational definitions to all aspects of the problem situation and formulate the problem. In this way, only relevant information is retained, primary goals of the problem solving process are clarified, important minor problems are identified, and the individual can address secondary issues and conflicts.

The third stage requires the generation of alternative possible solutions relevant to problem situation. It is important that the alternative solutions are appropriate to the given problem to increase the likelihood that a successful solution will be found. The concept of brainstorming has been applied to this process.

The next stage in the problem-solving process is decision making. A choice has to be made between the number of alternatives generated. The consequences of the alternative solutions must be estimated in order to select the best alternative that maximises positive consequences and minimises negative consequences. This estimation is based on several factors such as one's own experiences, knowledge of the experiences of others, and information gathered about the specific problem situation. The final step is to select the most appropriate response alternative. The alternatives and their consequences are compared with each other. An estimation also must be made of the likelihood of successful completion of the alternative.

The final stage follows after the chosen alternative has been selected and carried out. This is the verification stage. Examination may be made of how effectively the chosen alternative resolved the problem situation. The actual outcome may be compared with the expected outcome for discrepancies. This increases the likelihood that, when faced with future problems, the individual will not persist with a course of action that has been proven to be worthless. If the selected course of action was not successful in resolving the problem, the individual must then return to earlier stages to solve the problem. This may mean a return to the decision-making stage where an alternative solution is selected or may mean a return to the problem formulation stage. Although discussed in terms of sequential stages, it is accepted that this is not necessarily how individuals work through the problem-solving process. Some stages may occur in parallel while others may be missed altogether.

Another view (Spivack et al., 1976), provides a description of the skills needed to successfully problem-solve. There is some similarity with the previous view. The skills needed to successfully problem-solve are not considered to be personality traits or an aspect of general intelligence. While they most likely are a function of developmental level, the emergence of these skills is not linked with chronological age and physical development.

This formulation also emphasises the importance of the individual being aware of the possibility of a variety of problems being faced. Based on interpersonal problem-solving, it requires that an appreciation exists that human relationships are not stable and may, from time to time, require problems to be solved.

This formulation also discusses the need for the ability to generate alternative solutions to problems. Brainstorming is incorporated into this conceptualisation. Emphasis is given to the need to generate possible solutions to problem situations that are substantially different from one another. That is, there is little value in generating a number of alternative solutions that are merely variations of a core solution. The more diverse the alternative solutions, the more likely that the appropriate solution for that situation will be considered.

It also is necessary to have the ability to define and describe the steps needed to successfully carry out the chosen solution. This process is made more complex by the need to take into account a number of issues. It is important to recognise the possible obstacles that may impede the successful execution of the chosen solution and to devise alternative plans of action to achieve the desired goal. The prediction and social awareness of the reactions

of others must be taken into account. That is, consideration must be given to the fact that actions on the part of one individual will have a direct influence on the experiences of others. In addition, it is necessary to realise that the successful resolution of a problem situation may not be immediate.

Following from this, it is important to anticipate the consequences of one's behaviour on others. That is, consideration must be given to the impact the application of a problem solution has on the wellbeing of others. A judgement must be made as to whether the consequences can be tolerated. If the consequences are damaging to others, it would be necessary to reconsider the option chosen to solve the problem. The skill needed in this case is the generation of the realistic range of potential consequences of one's own actions. Also linked to this point is the need to be aware of the fact that one's own emotional state may influence the emotional state and psychological adjustment of another.

11.3.2 Problem-solving research

To a greater or lesser degree, all individuals have some problem-solving skills. The fact that people fail to apply them may be caused by reasons in two broad categories (Spivack et al., 1976). The failure to implement problem-solving skills may reflect a general social deficit. In this case, a child may have inadequately learned the skills because of some personal, familial or societal reason. Indeed, the child may not have been exposed to adequate models and may never have learned the skills necessary to successfully problem-solve. Alternatively, poor problem-solving may be situation-specific. That is, because of situational variables, both external and emotional,

an individual may be temporarily insensitive to the needs of a given situation.

The research investigating problem-solving deficiencies has focused on either the extent or nature of these deficits. Those studies examining extent have quantified general problem-solving deficits and compared scores between groups. Those studies investigating the nature of problem-solving deficits have examined the specific aspects of the problem-solving process that differentiate groups. Again, the literature in this area is extensive and it was necessary to be selective. Therefore, the major focus of this section is on problem-solving deficits of individuals who engage in self-destructive behaviour.

It has been suggested that when faced with chronic stress, feelings of hopelessness and suicidal behaviour may develop as a result of deficits in interpersonal problem-solving skills (Levenson & Neuringer, 1971; Schotte & Clum, 1982, 1987). Studies have supported the link between self-destructive behaviour in children (Orbach, Bar-Joseph & Dror, 1990), adolescents (Levenson & Neuringer, 1971; Platt, Spivack, Altman & Altman, 1974), and adults (Orbach et al., 1990; Platt & Spivack, 1972). Of course, younger people are particularly at risk because of limited life experience which means they lack the resources needed to cope in general (Levenson & Neuringer, 1971).

Experimental evidence has demonstrated that suicide attempters have specific deficits in problem-solving skills (Linehan, Camper, Chiles, Strosahl & Shearin, 1987; Schotte & Clum, 1987). These findings are consistent with the view that suicide attempts occur because of problem-solving failures during times of crisis (Salkovskis, Atha & Storer, 1990).

A diathesis stress model of suicidal behaviour has been proposed. The model suggests that the relationship between life stress and suicidal behaviour is influenced by cognitive rigidity which generally has been defined as the inability to identify both problems and the solutions to these problems (Orbach et al., 1990; Schotte & Clum, 1987). When faced with high levels of life stress, individuals who are unable to think in a flexible, divergent way are cognitively unprepared to generate a range of effective solutions to problems (Orbach et al., 1990; Schotte & Clum, 1987). When faced with permanent or temporary restrictions, self-destructive individuals appear to be incapable of generating potential solutions to emotional problems (Levenson & Neuringer, 1971). The development of effective solutions to problem situations is necessary for adaptive coping (Schotte & Clum, 1987). These deficits in problem-solving lead to feelings of hopelessness (Neuringer, 1974). Feelings of hopelessness leave the individual at risk of engaging in suicidal behaviour (Schotte & Clum, 1987).

High levels of life stress, cognitive rigidity, deficits in interpersonal problem solving, and feelings of hopelessness have all independently been linked with suicidal behaviour (Schotte & Clum, 1987). Indeed, both suicide attempters and suicidal ideators have been demonstrated to be inferior to nonsuicidal individuals on most aspects of the problem-solving process (Orbach et al., 1990). Further, suicide attempters have been demonstrated to have reduced problem-solving capacity compared with emotionally disturbed and normal control groups (Levenson & Neuringer, 1971).

Compared with nonsuicidal control groups, suicide attempters have been demonstrated to be more cognitively rigid (Schotte & Clum, 1987).

Indeed, cognitive rigidity has been demonstrated to be the variable that best discriminated suicide attempters from nonsuicidal controls (Patsiokas, Clum & Luscomb, 1979). The results of research in this area have evidenced significant deficits in the ability to generate possible solutions to problem situations. When faced with high levels of environmental stress, suicidal individuals have a limited ability to think in a divergent manner (Schotte & Clum, 1987). The nature of the solutions they generate for specific problem situations generally are irrelevant to that particular problem. Indeed, they have been demonstrated to repeatedly apply the same solution to a problem situation no matter the nature of that problem (Orbach et al., 1990).

Of course, the deficits are not restricted only to self-destructive individuals. General psychiatric patients have been demonstrated to display substantial problem-solving deficits (Platt, Siegel & Spivack, 1972), including the ability to generate alternative solutions to problem situations (Platt & Spivack, 1975). For example, a link has been determined between problem-solving deficits and depressive symptomatology in children, adolescents and adults (Doerfler, Mullins, Griffin, Siegel & Richards, 1984).

The thrust of this model is that suicide attempters have deficits in interpersonal problem solving. Initial investigation of this relationship was conducted using a college student population who reported suicidal ideation. Results indicated that a combination of life stress and deficits in problem-solving produced feelings of hopelessness and suicidal intent. That is, those subjects who reported experiencing the highest levels of negative life stress had the highest levels of suicidal intent and the most substantial deficits in problem-solving ability. It was postulated that the problem-solving skill

deficits played a mediational role in the relationship between negative life stress and suicidal intent. However, no relationship was demonstrated between deficits in interpersonal problem-solving and cognitive rigidity. The investigators speculated that measurement difficulties with regard to impersonal and interpersonal problem-solving skills may have produced this result (Schotte & Clum, 1982). These measurement difficulties have been identified by others (e.g., Gotlib & Asarnow, 1979).

Further investigation of this model assessed life stress, cognitive rigidity, interpersonal problem-solving skills, hopelessness and depression using hospitalised psychiatric patients who had been placed on suicidal observation because of suicidal ideation. The assessment of interpersonal problem solving included the skills of identification of problem situations, and the generation, evaluation and implementation of possible solutions to these problem situations (Schotte & Clum, 1987).

Results supported the diathesis stress model of suicidal behaviour. Compared with matched depressed controls, the suicidal group reported significantly higher levels of negative life stress. There was a significant positive correlation between the level of hopelessness and the degree of suicidal intent. An increase in the number of problems facing the individual corresponded with a decrease in the confidence to deal with these problems. The suicide ideators also evidenced higher degrees of cognitive rigidity and this influenced attempts at interpersonal problem-solving. Compared with the control group, the suicide ideators demonstrated a more limited capacity to generate possible solutions to personally relevant interpersonal problems (Schotte & Clum, 1987).

Further, although the suicidal ideators were as likely as controls to rate the consequences of solutions as positively, they demonstrated a tendency to overemphasise the possible negative consequences of the potential solutions. This tendency further complicated the reduced ability to generate solutions. Finally, although feelings of hopelessness were identified as a good predictor of suicidal intent, there was no relationship between feelings of hopelessness and interpersonal problem-solving deficits. It was concluded that suicidal ideators did not experience hopelessness as a direct result of poor interpersonal problem solving skills, but because of a general negative or maladaptive orientation toward problems (Schotte & Clum, 1987).

In this model, deficits in interpersonal problem-solving skills were viewed as a trait vulnerability that led to depression, hopelessness and suicidal behaviour (Schotte & Clum, 1982, 1987). However, many traits or vulnerabilities assumed to be stable have been demonstrated to alter as a function of time and mood state (e.g., Mischel, 1977; Mischel & Peake, 1982). Therefore, deficits associated, for example, with depression may not represent trait vulnerabilities but may represent a state dependent entity (Schotte, Cools & Payvar, 1990).

To clarify this position, the stability of interpersonal problem-solving skills over time were assessed in a sample of suicidal ideators (Schotte et al., 1990). Initial assessment was conducted on the first day of hospitalisation with a follow-up measurement being carried out on either the seventh or eighth day of hospitalisation. Even within this relatively short period of time there was marked improvement in mood state. There was a significant reduction in the number of subjects reporting depressive symptoms indicating

a moderate to severe depressive disorder. Significant decreases in anxiety levels, hopelessness and suicidal intent also were noted. If interpersonal problem-solving skill deficits account for symptoms of depression, hopelessness and suicidal behaviour (presumably including suicidal ideation), and if deficits in interpersonal problem-solving skills were understood as a trait vulnerability, then improvements within one week could not be accounted for by the model. Indeed, the results suggested a state dependent phenomenon. However, the conclusion that deficits in interpersonal problem-solving skills may be state dependent is based on the premise that such deficits cause depression, hopelessness and suicidal behaviour. The link between these variables may not be a simple causal relationship.

Individuals who engaged in repeated suicide attempts have been demonstrated to benefit from a brief problem-solving treatment programme. All subjects were selected on the basis of high levels of depression and hopelessness and high problem ratings. In all cases, conventional treatment was deemed impractical or unlikely to succeed. Significant reductions in the frequency of suicide attempts and suicidal ideation, depression and feelings of hopelessness were reported following treatment. Improvements were sustained beyond the treatment period and no such improvements were noted in the control group (Salkovskis et al., 1990).

11.3.3 Problem-solving and self-mutilation

There is a paucity of research directly addressing a relationship between problem-solving deficits and self-mutilative behaviour. A number of factors

suggest that an investigation of this relationship is warranted.

At the most elementary level, self-mutilators have been demonstrated to display high levels of psychiatric symptomatology and to engage in substantially more self-destructive or suicidal behaviour than comparison groups. Psychiatric symptomatology and in particular self-destructive behaviour has been demonstrated to be associated with deficits in problem-solving ability. There is no reason to suppose that self-mutilators would differ, in terms of the relationship between problem-solving and symptomatology, from individuals with similar psychological profiles but without self-mutilation.

There is some indication in the literature that failure at problem-solving may reflect a transitory or state phenomenon (Schotte et al., 1990). It is possible that self-mutilators have a threshold for stress, past which they cannot successfully activate the problem-solving process. It is worthy of note that between self-mutilative episodes and the experience of stress associated with them, most self-mutilators have been reported to function quite adequately (Graff & Mallin, 1967; Walsh & Rosen, 1988). It is possible that the effectiveness of their problem-solving ability fluctuates as a function of their stress level.

The nature of the relationship between self-mutilative behaviour and problem-solving ability can only be speculative. It is necessary to empirically examine this relationship.

11.4 Summary

It is evident that the relationship between self-mutilative behaviour and irrational beliefs, coping and problem-solving is yet to be defined. To date, the understanding of the relationship between these variables and self-inflicted injury is speculative. However, as some factor other than psychopathology is implicated in the occurrence of self-mutilative behaviour, it is necessary to explore the likelihood of the existence of an association between these variables.

CHAPTER TWELVE
COGNITIVE STRATEGIES OF SELF-MUTILATORS

12. COGNITIVE STRATEGIES OF SELF-MUTILATORS

12.1 Introduction

From the first study, it is evident that self-mutilative behaviour is associated with significant psychopathology. While some studies have suggested that there is a distinctive pattern of psychopathology associated with self-mutilative behaviour (Fruensgaard & Flindt Hansen, 1988; Lion & Conn, 1982; Nelson & Grunebaum, 1971; Schaffer et al., 1982; van Moffaert, 1990), the results of the previous study suggested that the symptomatology experienced may reflect sample differences. While the level of symptomatology was high, there was no single diagnosis that consistently could be applied to individuals who self-mutilate.

These results suggest that there is some other factor or factors, common to most or all self-mutilators, that influence the occurrence of the behaviour. It has been postulated that this variable may be the cognitive dysfunction of the individual. That is, self-mutilative behaviour occurs because of distortions or skills deficits in a number of areas. It was hypothesised that these areas include irrational beliefs, coping deficits and deficiencies in problem-solving abilities.

Little research literature has addressed the contribution to self-mutilative behaviour of irrational beliefs, coping and problem-solving. Most discussion is speculative. It is important to define the influence of these variables, particularly given the fact that self-mutilative behaviour is often discussed in terms of a coping or problem-solving failure (see Walsh & Rosen, 1988).

In terms of irrational beliefs, it would be expected that self-mutilators would be more irrational than the comparison groups employed in the previous study. The endorsement of a range of irrational beliefs has been associated with a range of symptomatology, in particular depression and anxiety (Gitlin & Tucker, 1988; Goldfried & Sobocinski, 1975; Himle et al., 1982; LaPointe & Crandell, 1980; Lohr & Bonge, 1979, 1981; Nelson, 1977; Sutton-Simon & Goldfried, 1979). The self-mutilators in the previous study also demonstrated elevated scores on measures of depression and anxiety. The content of the irrational beliefs has been demonstrated to alter as a function of the symptomatology experienced (Goldfried & Sobocinski, 1975; Lewinsohn et al., 1982; Smith, Houston & Zurawski, 1984; Zwemer & Deffenbacher, 1984). It has yet to be determined if a pattern of irrationality is associated with self-mutilative behaviour, over and above the association between depression and anxiety and specific irrational beliefs.

Self-mutilative behaviour has been described as a general failure of coping or as a maladaptive coping strategy in its own right (see Walsh & Rosen, 1988). Indeed, it would be expected that self-mutilators would evidence reduced coping ability in comparison with other groups. However, the exact nature of the coping deficits have not been identified. It has been suggested that a reliance of emotion-focused coping to the exclusion of problem-focused coping is associated with greater psychological maladjustment (Folkman & Lazarus, 1980; Mitchell et al., 1983; Moos & Billings, 1982; Pearlin & Schooler, 1978). It is possible that self-mutilators rely too heavily on emotion-focused coping.

Research also has determined that coping resources can buffer against the negative effects of life stress (Anson et al., 1983; Lin & Ensel, 1989). Both personal and external resources can provide this buffering effect and research results have been inconsistent in terms of the relative importance of either type of resource (Anson et al., 1993; Cummins, 1988; Israel et al., 1989; Lefcourt et al., 1984; Lin & Ensel, 1989; Sandler & Lakey, 1982). If self-mutilative behaviour is adopted as a coping strategy, it is likely that those individuals would have deficient coping resources.

Deficiencies in problem-solving ability have been demonstrated in individuals who experience elevated levels of symptomatology and high rates of self-destructive behaviour (Levenson & Neuringer, 1971; Schotte & Clum, 1982, 1987; Orbach et al., 1990; Platt et al., 1974; Platt & Spivack, 1972; Salkovskis et al., 1990). These factors also are typical of self-mutilators. Therefore, it can be postulated that problem-solving deficits are experienced by self-mutilators simply because of these factors. Also, it is likely that the transient state of the emotional distress experienced by self-mutilators might be linked to transitory or state deficits in problem-solving (Schotte et al., 1990). If this is the case, assessment of skills simply in terms of means-ends problem-solving would be unlikely to evidence deficits if assessed at a time when the mutilator was functioning well. It may be more appropriate to measure the subjects' perceptions of their general problem-solving ability. It would be expected that individuals who experienced substantial difficulties with problem-solving would rate their general performance as lower than individuals who experienced no such difficulties. Therefore, it would be expected that self-mutilators would score lower on a measure of perceived

problem-solving ability.

In summary, it is expected that self-mutilators will be more irrational than comparison groups although the nature of the irrationality has yet to be determined. Self-mutilators will report fewer coping resources than comparison groups and will adopt more maladaptive coping strategies to deal with specific stressors. Finally, self-mutilators will report poorer perceived problem-solving skills than comparison groups.

METHOD

12.2.1 Subjects

A total of 50 subjects from the first investigation participated in this study: 19 male self-mutilating prisoners; 13 male prisoners with no history of self-mutilation; and 18 male university students with no history of self-mutilation or criminal incarceration. The two self-mutilators who were not prisoners were excluded from this study. One of the prisoner controls subjects from the first study could not participate because he had been transferred to the minimum security farming complex of H.M. Prison Risdon.

12.2.2 Design

A three-group design was employed in this study: Group (self-mutilators, non-mutilating prisoners and normal controls) x dependent variable (irrational beliefs, coping resources, coping strategies, and personal problem-solving ability).

12.2.3 Materials

Beliefs Inventory

The Beliefs Inventory (Davis, Eshelman & McKay, 1988) is a modified form of the Irrational Beliefs Test (Jones, 1968). Whereas the Irrational Beliefs Test provides a range of response alternatives, the Beliefs Inventory allows for a forced choice, disagree/agree response to one hundred statements of attitudes and beliefs. Ten subscales are derived from the scale related to the ten irrational beliefs postulated by Ellis (Ellis & Harper, 1975) to be related to maladjustment. The subscales are as follows:

1. It is an absolute necessity for an adult to have love and approval from peers, family and friends.
2. You must be unfailingly competent and almost perfect in all you undertake.
3. Certain people are evil, wicked and villainous and should be punished.
4. It is horrible when things are not the way you would like them to be.
5. External events cause most human misery - people simply react as events trigger their emotions.
6. You should feel fear or anxiety about anything that is unknown, uncertain or potentially dangerous.
7. It is easier to avoid than face life difficulties and responsibilities.
8. You need something other or stronger or greater than yourself to rely on.
9. The past has a lot to do with determining the present.
10. Happiness can be achieved by inaction, passivity and endless leisure.

Belief Scale

The Belief Scale (Malouff & Schutte, 1986) is a 20 item scale measuring irrationality as defined by Ellis (Ellis & Harper, 1975). It is designed to assess

general irrationality without the confounding variable of anxiety. Five point Likert scales are provided for each of the 20 items.

Analysis of the internal consistency of this scale using Cronbach's alpha produced a coefficient of .80. No significant sex differences were evident. Analysis of test-retest reliability evidenced a product moment correlation coefficient of .89 (Malouff & Schutte, 1986). The construct and discriminant validity of the test have been supported elsewhere (Zgourides & Warren, 1988).

Coping Resources Inventory

The Coping Resources Inventory (CRI) (Hammer, 1988) was employed to measure the inherent and external resources subjects have available to cope with life stress. The scale provides a total coping resource score and subscale scores on five dimensions. The Cognitive subscale measures what could best be described as a positive set, that is, positive feelings towards oneself and others and a general optimistic attitude. The Social subscale assesses the degree to which the individual has access to a social network that can provide support when needed. The Emotional subscale measures the individual's acceptance and expression of affect and is based on the understanding that the ability to express emotions reduces the long-term effects of stress. The Spiritual/Philosophical subscale assesses the extent to which an individual's thoughts and actions are influenced by a solid value base which enables them to cope with adversity. It does not focus exclusively on traditional religious affiliation, but investigates familial, cultural and personal philosophies. Finally, the Physical subscale measures the extent to which the individual engages in health-promoting behaviours. This subscale

is based on the assumption that health-promoting behaviours reduce negative responses to stress and promote recovery.

The internal consistency of the test was assessed using Cronbach's alpha. The coefficients for the subscales were as follows: Cognitive .77; Social .79; Emotional .84; Spiritual/Philosophical .84; and Physical .71. The coefficient for the total scale score was .91 (Hammer, 1988).

Coping Strategies Inventory

The Coping Strategies Inventory (CSI) (Tobin, Holroyd & Reynolds, 1984) is a 72-item self-report scale used to assess coping cognitions and behaviours associated with a specific stressor. The format for the inventory was adapted from the Ways of Coping Questionnaire (Folkman & Lazarus, 1981). The respondent initially is requested to describe a stressful event, either one which is chosen by the subject or one chosen by the subject within certain limitations. These limitations are imposed by the experimenter and may include, for example, limitations of time or type of situation. The seventy-two items related to various coping strategies that may be used to deal with a stressful situation. The respondent is requested to indicate the extent to which each coping strategy was used in coping with the selected stressor. Responses are recorded on a five point Likert scale.

Eight primary subscales are provided along with the option for four secondary subscales and two tertiary subscales. The primary subscales are as follows:

1. Problem-Solving - This subscale assesses the cognitive and behavioural strategies employed to reduce stress by altering the problem situation.
2. Cognitive-Restructuring - This subscale assesses the way in which the

individual can cognitively alter their interpretation of the problem situation so that it can be viewed in a more positive way.

3. Social-Support - This subscale assesses the availability to the individual of emotional support from significant others.

4. Express-Emotions - This subscale assesses the ability of the individual to release and express emotions.

5. Problem-Avoidance - This subscale assesses the avoidance of cognitions or behaviours aimed at resolving the problem situation. It also measures the extent to which the individual denies that a problem exists.

6. Wishful-Thinking - This subscale assesses the inability or reluctance on the part of the individual to cognitively or behaviourally deal with the problem situation. The strategy is based on the cognitive strategy of fantasising or hoping that the situation will improve.

7. Social-Withdrawal - This subscale assesses the withdrawal by the individual from significant others, particularly in terms of emotional reaction, as a result of a stressful situation.

8. Self-Criticism - This subscale assesses the extent to which an individual holds his/herself responsible for the problem situation or criticises oneself for the situation occurring.

Problem-Solving, Cognitive-Restructuring, Problem-Avoidance and Wishful-Thinking are problem-focused coping strategies with the first two representing problem engagement and the latter two representing problem disengagement. Social-Support, Express-Emotions, Self-Criticism and Social-Withdrawal are emotion-focused coping strategies, again with the first two representing problem engagement and the latter two problem disengagement.

The Cronbach's alpha coefficients for the subscales are as follows: Problem-Solving .82; Cognitive-Restructuring .83; Social-Support .89; Express-Emotions .89; Problem-Avoidance .72; Wishful-Thinking .78; Social-Withdrawal .81; and Self-Criticism .94. Some difficulty was encountered in determining test-retest reliability because subjects more often rated coping strategies used for different stressors on retest. When subjects responded in the context of the original stressor on retest, the coefficients were as follows: Problem-Solving .67; Cognitive-Restructuring .68; Social-Support .81; Express-Emotions .77; Problem-Avoidance .71; Wishful-Thinking .68; Social-Withdrawal .68; and Self-Criticism .83 (Tobin et al., 1984).

Personal Problem-Solving Inventory

The Personal Problem-Solving Inventory (Heppner & Petersen, 1982) provides a measure of the problem-solving process. It assesses how individuals generally deal with problem situations. This 35 item scale has a 6 point Likert response format. Three subscales can be derived from subjects' responses: problem-solving confidence, approach-avoidance problem-solving style and personal control in problem-solving situations. Test-retest coefficients were as follows: problem-solving confidence .85, approach-avoidance style .88, personal control .83, and the total scale score .89.

12.2.4 Procedure

The procedure is the same as for study one. Forensic staff the Risdon Prison contacted subjects and all prisoners subjects were interviewed at the prison hospital. Normal control subjects were interviewed in the Department of Psychology at the University of Tasmania. All scales were verbally

administered. The duration of interview ranged from one and three-quarter hours to three hours per subject.

RESULTS

12.3.1 Irrational beliefs

The mean scores and standard deviations of the three groups for the Beliefs Inventory are presented in Table 23. Significant differences between groups were evident for three of the irrational beliefs with trends toward significance for a further two irrational beliefs.

The self-mutilators scored significant higher than the normal controls on the irrational beliefs "It is an absolute necessity for an adult to have love and approval from peers, family and friends" ($F(2,49)=3.54$, $p=.037$), and "The past has a lot to do with determining the present" ($F(2,49)=6.38$, $p=.003$). The prisoner controls achieved intermediate scores and did not differ from the other two groups. The self-mutilators scored significantly lower than the normal controls on the irrational belief "You need something other or stronger or greater than yourself to rely on" ($F(2,49)=3.56$, $p=.036$). Again the prisoner controls achieved intermediate scores and did not differ from the other two groups.

There was a trend towards the self-mutilators scoring higher than the prisoner controls on the irrational belief "You must be unfailingly competent and almost perfect in all you undertake" ($F(2,49)=3.05$, $p=.056$). The normal controls achieved the intermediate scores and did not differ from the other groups. There was also a trend for the self-mutilators to score higher than

both the normal controls and prisoner controls on the irrational belief "You should feel fear or anxiety about anything that is unknown, uncertain or potentially dangerous" ($F(2,49)=3.01$, $p=.058$). The two control groups did not differ from each other.

Table 23: The mean scores and standard deviations on the Beliefs Inventory for the three groups.

Irrational belief controls	Self-mutilators	Prisoner controls	Normal
It is an absolute necessity for an adult to have love and approval from peers, family and friends.	4.29 (1.31)	3.38 (1.98)	3.00 (1.45)
You must be unfailingly competent and almost perfect in all you undertake.	4.43 (1.63)	2.92 (1.11)	3.72 (2.16)
Certain people are evil, wicked and villainous and should be punished.	4.48 (1.81)	4.92 (1.50)	5.39 (1.88)
It is horrible when things are not the way you would like them to be.	4.29 (1.31)	4.31 (1.60)	4.22 (2.34)
External events cause most human misery - people simply react as events trigger their emotions.	4.00 (1.61)	2.92 (1.75)	4.00 (2.40)
You should feel fear or anxiety about anything that is unknown, uncertain or potentially dangerous.	6.14 (1.28)	4.61 (2.14)	4.78 (2.69)
It is easier to avoid than face life difficulties and responsibilities.	4.95 (1.32)	4.61 (1.45)	5.61 (1.68)
You need something other or stronger or greater than yourself to rely on.	3.67 (1.53)	3.92 (1.60)	5.06 (1.89)
The past has a lot to do with determining the present.	5.76 (1.92)	4.77 (1.64)	3.50 (2.23)
Happiness can be achieved by inaction, passivity and endless leisure.	4.67 (1.93)	5.54 (2.07)	4.28 (2.27)

The self-mutilators scored significantly higher than both the prisoner controls and the normal controls on the total score for the Belief Scale ($F(2,47)=6.56$, $p=.003$). The two control groups did not differ from each other. Table 24 displays the mean scores and standard deviations of the three groups for the individual items of the Belief Scale. Two items distinguished the self-mutilators from the two controls groups. Self-mutilators endorsed high levels of agreement to item 7 "Life should be easier than it is" ($F(2,47)=5.45$, $p=.007$), and item 11 "Many events from my past so strongly influence me that it is impossible to change" ($F(2,47)=7.33$, $p=.002$). The self-mutilators scored significantly higher than the two control groups and the control groups did not differ from each other.

Two items distinguished the prisoner groups from the normal controls. Prisoner subjects endorsed high levels of agreement to item 2 "My negative emotions are the result of external pressures" ($F(2,47)=6.17$, $p=.004$) and moderately high levels of agreement to item 12 "Individuals who take unfair advantage of me should be punished" ($F(2,47)=3.69$, $p=.032$).

One item distinguished the prisoner controls from the normal controls but did not differentiate the self-mutilators from the two control groups. Prisoner controls endorsed significantly lower levels of agreement to item 6 "When it looks as if something might go wrong, it is reasonable to be quite concerned" ($F(2,47)=3.24$, $p=.048$). Both the self-mutilators and normal controls endorsed moderately high levels of agreement to this item.

Three items significantly differentiated the self-mutilators from the normal controls with a trend toward significance for a further two items. In all cases the self-mutilators endorsed the highest levels of agreement and

the prisoner controls demonstrated an intermediate score. Self-mutilators endorsed high levels of agreement to item 9 "It makes more sense to wait than to try to improve a bad life situation" ($F(2,47)=5.95$, $p=.005$), item 17 "I cannot help how I feel when everything is going wrong" ($F(2,47)=4.33$, $p=.019$), and item 14 "It is terrible when things do not go the way I would like" ($F(2,47)=2.99$, $p=.060$). Self-mutilators endorsed moderately high levels of agreement to item 13 "If there is a risk that something bad will happen, it makes sense to be upset" ($F(2,47)=2.42$, $p=.099$), and moderately low agreement, but greater than normal controls, for item 19 "It is better to ignore personal problems than to try to solve them" ($F(2,47)=3.21$, $p=.049$).

Table 24: The mean scores and standard deviations on the individual items of the Beliefs Scale for the three groups.

Item	Self-mutilators	Prisoner controls	Normal controls
To be a worthwhile person I must be thoroughly competent in everything I do.	3.26 (1.63)	2.69 (1.55)	2.89 (1.37)
My negative emotions are the result of external pressures.	4.32 (0.95)	3.85 (1.40)	2.89 (1.41)
To be happy, I must maintain the approval of all the persons I consider significant.	3.00 (1.56)	2.38 (1.61)	3.00 (1.41)
Most people who have been unfair to me are generally bad individuals.	2.42 (1.50)	3.31 (1.60)	2.61 (1.19)
Some of my ways of acting are so ingrained that I could never change them.	3.47 (1.47)	3.46 (1.61)	3.06 (1.21)
When it looks as if something might so wrong it is reasonable to be quite concerned.	4.21 (1.08)	3.46 (1.66)	4.50 (0.62)
Life should be easier than it is.	4.42 (1.02)	3.08 (1.75)	3.39 (0.98)
It is awful when something I want to happen does not occur.	3.89 (1.29)	3.31 (1.60)	3.56 (1.04)
It makes more sense to wait than to try to improve a bad life situation.	4.00 (1.29)	3.31 (1.70)	2.39 (1.33)
I hate it when I cannot eliminate an uncertainty.	4.26 (0.93)	4.23 (1.36)	3.61 (1.24)
Many events from my past so strongly influence me that it is impossible to change.	4.10 (1.15)	2.69 (1.70)	2.44 (1.42)
Individuals who take unfair advantage of me should be punished.	3.95 (1.27)	3.85 (1.40)	2.89 (1.18)
If there is a risk that something bad will happen, it makes sense to be upset.	3.89 (1.33)	3.54 (1.61)	2.94 (1.06)
It is terrible when things do not go the way I would like.	4.10 (1.05)	3.38 (1.61)	3.17 (1.04)
I must keep achieving in order to be satisfied with myself.	3.53 (1.39)	3.23 (1.83)	3.44 (1.34)
Things should turn out better than they usually do.	3.79 (1.32)	3.38 (1.66)	2.94 (1.06)
I cannot help how I feel when everything is going wrong.	4.47 (0.96)	4.08 (1.26)	3.39 (1.19)
To be happy I must be loved by the persons who are important to me.	4.10 (1.24)	4.385(1.32)	4.22 (1.11)
It is better to ignore personal problems than to try to solve them.	2.74 (1.85)	1.77 (1.30)	1.61 (0.98)
I dislike having any uncertainty about my future.	3.58 (1.43)	2.85 (1.28)	3.39 (1.50)
Total scale score	75.53 (9.86)	66.08 (12.05)	62.50 (12.02)

12.3.2 Coping resources

Significant differences between groups on three of the five subscales of the CRI were evident. Table 25 displays the mean standard scores and standard deviations for the three groups on the CRI. Scores on the Cognitive subscale distinguished the self-mutilators from both the control groups. Self-mutilators scored significantly lower ($F(2,46)=7.03$, $p=.002$) with no difference being evident between the two control groups. Scores on the Social subscale differentiated the two prisoner groups from the normal controls. Both the self-mutilators and the prisoner controls scored significantly lower than the normal controls ($F(2,46)=5.49$, $p=.007$) with no difference between the prisoner groups being evident. The self-mutilators scored significantly lower than the normal controls on the Spiritual/Philosophical subscale ($F(2,46)=3.95$, $p=.026$). Prisoner controls achieved intermediate scores and did not significantly differ from the other two groups. Overall, there was a trend towards the self-mutilators scoring lower than the normal controls on the total scale ($F(2,46)=3.11$, $p=.054$) with no other differences being evident.

Table 25: The mean standard scores and standard deviations on the scales of the Coping Resources Inventory for the three groups.

Scale	Self-mutilators	Prisoner controls	Normal controls
Cognitive	37.11	45.69	50.83
	(11.88)	(9.29)	(11.38)
Social	35.89	36.92	44.61
	(8.86)	(7.97)	(8.45)
Emotional	51.28	57.46	56.94
	(11.08)	(9.21)	(9.61)
Spiritual/philosophical	36.22	39.23	44.61
	(8.70)	(8.53)	(9.71)
Physical	45.94	49.61	44.06
	(10.74)	(13.65)	(9.76)
Total scale	38.28	43.46	46.83
	(11.12)	(10.11)	(9.71)

12.3.3 Coping strategies

Table 26 presents the means and standard deviations of the three groups on the subscales of the CSI. Of the positive coping strategy subscales of the CSI, only one significant result was evident. Both prisoner groups scored significant lower than the normal controls on the Social Support subscale ($F(2,45)=4.73$, $p=.014$). No difference was apparent between the self-mutilators and the prisoner controls. Of the negative coping strategy subscales, two subscales provided significant results with a trend towards significance for another. Self-mutilators scored significantly higher than both control groups on the Problem Avoidance subscale ($F(2,45)=5.27$, $p=.009$). No significant difference was evident between the control groups. Both prisoner groups

scored significantly higher than the normal controls on the Social Withdrawal subscale (F(2,45)=9.17, p=.001). No difference between the prisoner groups was evident. There was a trend for the self-mutilators to score higher than the prisoner controls on the Wishful Thinking subscale (F(2,45)=2.60, p=.085). No other differences were apparent.

Table 26: The mean scores and standard deviations on the subscales of the Coping Strategies Inventory for the three groups.

Scale	Self-mutilators	Prisoner controls	Normal controls
Problem solving	2.93 (1.02)	3.03 (0.55)	3.25 (1.04)
Cognitive restructuring	2.80 (0.91)	2.90 (0.82)	2.97 (0.94)
Express emotions	3.18 (1.39)	2.43 (0.85)	2.44 (0.89)
Social support	2.36 (1.09)	2.09 (0.77)	3.14 (1.06)
Problem avoidance	2.41 (0.61)	1.80 (0.53)	1.91 (0.55)
Wishful thinking	3.59 (0.74)	2.79 (1.33)	2.96 (1.03)
Self criticism	3.02 (1.07)	2.61 (1.45)	2.34 (1.18)
Social withdrawal	3.23 (1.01)	2.82 (0.77)	2.06 (0.64)

12.3.4 Problem-solving

Table 27 depicts the mean scores and standard deviations for the three groups on the PPSI. Scores on the Personal Control subscale distinguished

the self-mutilators from the control groups. Self-mutilators scored significantly worse than both the prisoner control and the normal control subjects on this subscale ($F(2,42)=6.45$, $p=.004$). No difference was apparent between the two control groups. In addition, there was a trend for self-mutilators to score worse than normal controls on the Approach Avoidance subscale ($F(2,42)=2.65$, $p=.082$). No other differences were apparent. In terms of the total scale score, self-mutilators scored significantly worse than the normal controls ($F(2,42)=4.50$, $p=.017$). The prisoner controls achieved intermediate scores but significant differences between the prisoner controls and other groups were not evident.

Table 27: The mean scores and standard deviations on the scales of the Personal Problem Solving Inventory for the three groups.

Scales	Self-mutilators	Prisoner controls	Normal controls
Problem solving confidence	32.37 (12.09)	27.64 (10.58)	25.89 (4.63)
Approach/avoidance	56.81 (16.31)	51.18 (20.36)	44.17 (12.53)
Personal control	22.87 (6.16)	17.82 (6.61)	16.00 (3.54)
Total	112.06 (28.37)	96.64 (33.20)	86.06 (14.89)

DISCUSSION

This was an investigative study of the factors that may influence the occurrence of self-mutilative behaviour. It was hypothesised that the

endorsement of irrational beliefs, poor coping resources and strategies, and deficits in problem-solving ability would be related to the occurrence of self-mutilative behaviour.

In terms of general irrationality, self-mutilators were determined to be more irrational than both prisoner controls and normal controls. An attempt was made to determine if patterns of endorsement could distinguish self-mutilators from the control groups. The irrational beliefs that were endorsed more often by self-mutilators than by non-mutilating prisoners and normal controls were: "Life should be easier than it is"; "Many events from my past so strongly influence me that it is impossible to change"; and "You should feel fear or anxiety about anything that is unknown, uncertain or potentially dangerous". High levels of agreement were recorded on the first two of these three beliefs and the results indicated a significant difference. The degree of irrationality associated with the latter belief was only moderate and analysis indicated no more than a trend towards significance. It should be noted, however, that although the degree of endorsement was only moderate for this belief, it was the highest of all beliefs identified on the Beliefs Inventory.

Both prisoner groups endorsed high levels of agreement to the belief, "My negative emotions are the result of external pressures" and moderately high levels of agreement to the belief, "Individuals who take unfair advantage of me should be punished". Both prisoner groups rated significantly higher levels of agreement to these beliefs than the normal control subjects.

Superficially, there is some support for differential patterns of endorsement of irrational beliefs identifying particular subject groups. Self-

mutilators endorsed a number of irrational beliefs over and above those associated with incarceration and, indeed, incarceration has been determined to be associated with irrationality (Ford, 1991).

However, two important factors should not be overlooked. Firstly, although high levels of agreement for single items of the Belief Scale were recorded, overall endorsement of irrational beliefs as recorded on the Beliefs Inventory were low to moderate. When asked the question directly, subjects would endorse high levels of agreement but when the level of agreement to a particular irrational belief was calculated, agreement was low. This may reflect the design of the Belief Scale which has all twenty items presented in the same direction so a response set could easily develop. This criticism has been voiced elsewhere (Ford, 1991).

The second important factor relates to overlap of items. The Beliefs Inventory presents a series of statements, the responses to which are used to derive the level of endorsement of ten irrational beliefs. The Belief Scale presents twenty items, two items assessing each of the same ten irrational beliefs as presented in the Beliefs Inventory. Therefore, you would expect that the irrationality of an individual would be reflected in a similar way on both scales. This was not the case. Indeed, in terms of identification of beliefs that distinguished groups, overlap of items was minimal.

At least two possible explanations may be forwarded to explain this result. The lack of congruence between tests may relate to a difficulty with the nature of the scales. As mentioned, the likelihood of an acquiescent response set is increased with the Belief Scale because of the presentation of the items. The individual items of the Beliefs Inventory are presented in

both positive and negative sets. Therefore, the chances of a response set developing in response to these items is diminished. Alternatively, the identified 'patterns' of irrational beliefs used to distinguish groups simply may reflect individual differences and not represent patterns at all. This point only can be clarified by repeating the investigation with other, larger samples. However, the important point to note is that, when the evidence is taken as a whole, the level of irrationality reported by the self-mutilators only is moderate.

Three elements distinguished prisoner subjects from normal controls in terms of coping. Both prisoner groups had fewer social resources, less often used social support (engagement strategy) and more often used social withdrawal (disengagement strategy) as coping strategies than did the normal controls. These results are hardly surprising given the fact that incarceration itself and the prison environment have been demonstrated to disrupt normal social networks and support systems (James & Johnson, 1983; Johnson, 1978). Indeed, the use of effective coping strategies by prisoners, even those with high levels of depressive symptomatology, has been reported (Cooper & Livingston, 1991).

However, self-mutilators also demonstrated reduced cognitive resources, the extent to which the individual can maintain a feeling of positive self-worth, and engaged in more problem-avoidance coping strategies. In both cases, these results significantly differentiated self-mutilators from both control groups.

When the results are taken as a whole, the self-mutilators generally were poorer copers than other groups. They achieved the scores most indicative of inadequate coping resources (cognitive, social, spiritual/

philosophical) and coping strategies (social support, problem avoidance, social withdrawal and wishful thinking). However, there is not a clear cut difference in the coping skills of the groups. In addition, there is no clear evidence that self-mutilators rely on emotion-focused coping to the exclusion of problem-focused coping. Indeed, the results do not support the proposition that self-mutilators adopt self-mutilative behaviour as a coping strategy because of substantial deficits in coping abilities or limited coping alternatives.

Nor do the results support the proposition that self-mutilators have poor problem-solving skills. The only variable that distinguished self-mutilators from the control groups related to the Personal Control subscale. Self-mutilators perceived themselves to have less control over interpersonal problem-solving situations than did the prisoner controls and the normal control subjects.

When the evidence is taken as a whole, there is little to suggest that self-mutilators display massive deficits in coping and problem-solving. Nor are they particularly irrational. The implication of these results is clear. Self-mutilative behaviour is not adopted as a means of dealing with distress because self-mutilators have no others means of coping or because they are unable to adequately solve their problems. There must be some other factor that recommends the use of self-mutilative as a means of dealing with emotional distress. It is necessary to examine the phenomenology of an act of self-mutilation itself. It is likely that there is some element of the act of self-mutilation and its consequences that can explain why self-mutilators adopt the behaviour at times of stress.

CHAPTER THIRTEEN
TENSION REDUCTION MODEL REVISITED

13. TENSION REDUCTION MODEL REVISITED

13.1 The phenomenology of self-mutilation

Self-mutilative behaviour is often very difficult for the non-mutilator to understand. Physical damage is inflicted in the absence of pain and appears to bring relief for the self-mutilator (Lion & Conn, 1982). The behaviour may become more understandable when the process of an act of self-mutilation is examined (Raine, 1982).

The tension reduction model of self-mutilation postulates that self-mutilative behaviour relieves the individual of escalating negative emotions and that this relief reinforces the self-mutilator (Bennun, 1984). An act of self-mutilation typically follows a sequence of events that have been described as almost stereotyped (Simpson, 1976). The understanding of this sequence of events is drawn from phenomenological and clinical reports.

As self-cutting is the most common form of self-mutilative behaviour (Feldman, 1988a; Fruensgaard & Flindt Hansen, 1988; Ross & McKay, 1979), the following description will focus on this type of behaviour. However, other forms of self-mutilative behaviour follow the same pattern (Kahan & Pattison, 1984; Pattison & Kahan, 1983; Walsh & Rosen, 1988).

13.1.1 Preceding emotional state

Self-mutilators have reported a range of feelings that occur immediately prior to an act of self-mutilation. These feelings typically include anxiety, depression, loneliness, resentment, anger, self-hatred and tension (Feldman,

1988a; Gardner & Gardner, 1975; Graff & Mallin, 1967; Grunebaum & Klerman, 1967; Rosenthal et al., 1972; Schwartz et al., 1989; Simpson, 1976). Although self-mutilators have reported depression preceding the act and talk in terms of sadness and dejection, these feelings appear to be qualitatively different from classical depression (Bennum, 1983). Elements of anger and agitation are more common with rapid fluctuations of mood (Grunebaum & Klerman, 1967). These feelings are reported to escalate over a relatively short period of time (Feldman, 1988a; Gardner & Gardner, 1975; Grunebaum & Klerman, 1967; Simpson, 1975, 1976) and follow an extended period of emotional quiescence (Grunebaum & Klerman, 1967). As feelings escalate, the predominant affect becomes tension or anxiety (Rosenthal et al., 1972; Simpson, 1975, 1976).

A variety of factors have been reported to precipitate these feelings. However, the common thread in the literature is that escalating negative emotions occur in reaction to interpersonal conflict, rejection, separation or abandonment either in relation to a significant other or a professional (Feldman, 1988a; Grunebaum & Klerman, 1967; Novotny, 1972; Rosenthal et al., 1972; Simpson, 1975, 1976). These circumstances may be threatened, real or imagined (Novotny, 1972). As the behaviour becomes habitual, self-mutilative episodes may be precipitated by minor events (Graff & Mallin, 1967). Indeed, commonly no precipitating factor could be found when this factor was specifically examined (Gardner & Gardner, 1975). The link between the precipitating events and the negative emotional state is not always understood by self-mutilators (Grunebaum & Klerman, 1967).

13.1.2 Contemplation of self-mutilation

As negative feelings escalate, and in response to the fact that self-mutilators have difficulty expressing these emotions, an act of self-mutilation is contemplated (Feldman, 1988a; Pao, 1969). The self-mutilator becomes increasingly preoccupied with the urge to perform the act (Grunebaum & Klerman, 1967).

An initial internal struggle may ensue whereby the self-mutilator fights against the desire to harm him or herself (Feldman, 1988a; Pao, 1969; Simpson, 1976). The situation may be perceived as uncontrollable (Feldman, 1988a). However, one study reported only a small number of subjects who actually engaged in this internal struggle and the majority of those subjects had a diagnosable obsessional disorder (Gardner & Gardner, 1975). As the behaviour becomes habitual, a sense of resignation of the inevitability of an act of self-mutilation has been reported (Walsh & Rosen, 1988).

Feelings of exultation and excitement may occur with the impulse to self-mutilate (McKerracher et al., 1968). More commonly, when the decision to self-mutilate is made, mild relief is experienced (Podvoll, 1969; Simpson, 1975, 1976). Alternatively, many self-mutilators report having no warning that an act of self-mutilation is about to occur (McKerracher et al., 1968). When questioned about the duration of contemplation of the act of self-mutilation, 78% of a large sample of female self-mutilators reported that the decision to self-mutilate was made on the spur of the moment and a further 15% reported that they had contemplated the act for no longer than one hour prior to injury (Favazza & Conterio, 1989).

13.1.3 Isolation

As the act of self-mutilation becomes imminent, self-mutilators have been reported to seek solitude and privacy (Feldman, 1988a; Simpson, 1975, 1976). Precautions often are taken to avoid accidental discovery or interruption of the act (Kaplan & Fik, 1977).

Episodes of public self-mutilation have been reported (Favazza & Conterio, 1989; Wilmotte & Plat-Mendlewicz, 1973). Approximately half of a large sample of self-mutilators reported having engaged in self-mutilative behaviour in the presence of other people (Favazza & Conterio, 1989). The motivation for such an act of self-mutilation is generally interpreted as operant or manipulative (Claghorn & Beto, 1967; Johnson & Britt, 1967).

13.1.4 Depersonalisation

As the escalating negative feelings become intolerable, many self-mutilators report feeling numb, withdrawn and unreal (Feldman, 1988a; Graff & Mallin, 1967; Grunebaum & Klerman, 1967; Rosenthal et al., 1972; Simpson, 1975; Winchel & Stanley, 1991). These feelings indicate a state of depersonalisation (Feldman, 1988a; Gardner & Gardner, 1975; Pao, 1969; Rosenthal et al., 1972; Simpson, 1976).

It has been said that during a depersonalised state, the individual experiences a "temporary alteration of the capacity to feel, to react, and above all to control impulse" (Waltzer, 1968 p.399). The characteristics of the depersonalised state have been reported to be "alterations in thinking, disturbed time sense, loss of control, change in emotional expression, body image change, perceptual distortion, changes in meaning or significance,

feelings of rejuvenation and hypersuggestibility" (Waltzer, 1968 p.400). The experience may exist on a continuum from common phenomena such as daydreaming and lapses in concentration, through depersonalisation, to dissociation. Dissociation is "a pathological failure to integrate thoughts, feelings, memories, and actions into a coherent and unified sense of consciousness" (Demitrack et al., 1990, p.1184).

In a state of depersonalisation, the individual reports being aware of their own behaviour as though they are observing it from a distance. This leads to a disinhibiting effect whereby normally unacceptable behaviours may be carried out without concern (Waltzer, 1968).

From descriptions by self-mutilators, depersonalisation has been postulated to occur prior to the act of self-mutilation for most self-mutilators (Rosenthal et al., 1972; Simpson, 1975). Although depersonalisation is reported to be a common clinical occurrence (Waltzer, 1968), none of the control group reported such a state (Simpson, 1975).

High rates of depersonalisation have led some investigators to postulate that depersonalisation is an essential feature of self-mutilative behaviour (e.g., Rosenthal et al., 1972). However, other studies have reported smaller percentages of subjects experiencing depersonalisation and these authors tend not to agree that depersonalisation is a necessary feature of an act of self-mutilation (e.g., Gardner & Gardner, 1975). Depersonalisation as a component of the self-mutilative process is not universally experienced by all self-mutilators and as such cannot be considered a prerequisite of the act of self-mutilation.

Self-mutilators have reported difficulty in recollecting their feelings and actions during an episode of self-mutilation (Mayfield & Montgomery,

1972; Simpson, 1976; van Moffaert, 1990). While this has sometimes been interpreted as stubborness and manipulation, it is more likely due to the fact that some self-mutilators become so tense that they dissociate completely (Pao, 1969; Simpson, 1976; van Moffaert, 1990). Self-mutilation under these circumstances has sometimes been termed automutilation (van Moffaert, 1990). However, initial difficulty in discussing the details of self-mutilative episodes also has been linked to the depersonalised state. On examination, true amnesia did not exist but all self-mutilators who were severely depersonalised reported problems of recall (Gardner & Gardner, 1975). In a sample of females with eating disorders (anorexia and bulimia), those subjects with scores on a measure of dissociation that fell outside the normal range had significantly higher rates of self-mutilative behaviour (Demitrack et al., 1990).

Initially, this type of phenomenon may be adaptive. Dissociation may serve to cushion the individual from the effects of acute trauma (Demitrack et al., 1990). It has been suggested that depersonalisation serves to control negative affect such as anxiety (Waltzer, 1968). The phenomena become maladaptive when a generalisation effect occurs to times of mild to moderate stress (Demitrack et al., 1990). This control is incomplete, and in combination with decreased impulse control, there is an increased likelihood that acting out will occur. However, the depersonalised state itself may cause a sense of panic which is reported to be secondary to the unreality and detachment commonly associated with the state (Waltzer, 1968). There develops an overwhelming need to end the depersonalisation.

13.1.5 Painless cutting

As the negative feelings become intolerable, the self-mutilator then engages in self-injury. Once the decision to self-mutilate was made, 30% of female self-mutilators in one sample reported that they always completed the act, 51% stated that they almost always completed the act, 15% sometimes and 4% rarely (Favazza & Conterio, 1989). The injury is reported to occur quite suddenly (Simpson, 1976). Even for those reporting complete dissociation, the site and severity of the wound are controlled (Feldman, 1988a; Simpson, 1975). Physical damage may range from a single deep laceration to multiple superficial cutting requiring little medical attention (Rosenthal et al., 1972).

Cutting typically occurs in the absense of painful sensation (Gardner, & Gardner, 1975; Graff & Mallin, 1967; Grunebaum & Klerman, 1967; Rosenthal et al., 1972; Ross & McKay, 1979; Simpson, 1976; Walsh & Rosen, 1988). Because of this, multiple lacerations can be made (Kaplan & Fik, 1977; Ross & McKay, 1979). This absence of pain is reported despite the fact that attempts to desensitise or anaethestise the skin rarely are made (Ross & McKay, 1979) and despite the fact that lacerations often are severe (van Moffaert, 1990). Tolerance for treatment procedures is usually high (Feldman, 1988a; van Moffaert, 1990).

Some self-mutilators do report painful sensation upon cutting (Favazza & Conterio, 1989) although these reports are in the minority (e.g., McKerracher et al., 1968; Novotny, 1972; Simpson, 1975). Few self-mutilators report that they cease cutting because of pain (Rosenthal et al., 1972) although most admit that painful sensation returns minutes or hours after the act (Gardner

& Gardner, 1975).

Where pain has been experienced, self-mutilators have described a need to transform uncontrollable psychological torment into a manageable physical sensation (Feldman, 1988a). This transformation achieves the same result of tension reduction as for the painless cutters (Winchel & Stanley, 1991). Laboratory studies have demonstrated that reactive pain is lessened if the pain is anticipated (Bowers, 1968). This would be the case in self-inflicted injury.

The most common explanation for the lack of pain despite often quite deep and extensive physical damage is that depersonalisation inhibits pain perception (Coons et al., 1986; Grunebaum & Klerman, 1967; Pao, 1969; Rosenthal et al., 1972; Russ, Roth, Lerman, Kakuma, Harrison, Shindledecker, Hull & Mattis, 1992; Simpson, 1976; van Moffaert, 1990; Waltzer, 1968). The circumstances surrounding an act of self-mutilation have been described as hysterical outbursts and that the absence of pain reflects hysterical amnesia (McKerracher et al., 1968).

However, whereas the depersonalisation experience does not persist beyond the commission of the act, the absence of pain has been reported to continue for up to hours, or even days after the act (Feldman, 1988a; McKerracher et al., 1968; Simpson, 1975, 1976). While perceptual acuity is decreased during the depersonalised state, it also has been reported that reactivity to dangerous external stimuli also is compromised (Waltzer, 1968).

An attempt was made to empirically test the problem of pain perception in self-mutilation examining female personality disordered individuals with a history of self-mutilation who did and did not experience pain upon

commission of the act. These groups were compared with normal controls (Russ et al., 1992). In response to a cold pressor test, a significantly lower level of pain perception was reported in self-mutilators who also reported no pain during their acts of self-mutilation when compared to those who did report pain during their mutilative acts. The pain group did not significantly differ from non-mutilating controls. Interestingly, the group with a lower pain perception reported an improvement in mood following the cold pressor test which was not observed in the self-mutilation gorup with normal pain perception or in the non-mutilating control group.

While many factors may influence the perception of pain such as depression (Davis, Buchsbaum & Bunney, 1979), the presence of an eating disorder (Lautenbacher, Pauls, Strian, Pirke & Krieg, 1990, 1991), the administration of psychotropic medication (Feinman, 1985), cigarette smoking (Pomerleau, Turk & Fertig, 1984) and the phase of the menstrual cycle (Goolkasian, 1980), the presence of these factors did not significantly differentiate the groups. The factor that did distinguish the self-injury groups was that the age of onset of self-mutilation was significantly younger for the no-pain group (Russ et al., 1992). The repetition of any behaviour can have a desensitising effect leading, for example, to decreased inhibition and greater risk taking (Bancroft & Marsack, 1977). It was postulated that the repetition of the behaviour also may have a desensitising effect on the neurophysiological mechanism associated with pain perception (Russ et al., 1992). One problem that exists with this conclusion is that many self-mutilators do not experience pain from the very first episode of self-mutilation (Ross & McKay, 1979; Walsh & Rosen, 1988). The authors attempted to

explain this anomaly by indicating that the normally pain-inducing event may be of a different type that occurred before the onset of self-mutilation, for example, childhood abuse. However, not all self-mutilators who lack painful sensation have reported such an early trauma (Favazza & Conterio,1989).

It would appear that there is something other than this to explain painless cutting. A particularly promising line of research concerns the investigation of the presence of elevated levels of endogenous opiates at the time of self-cutting (e.g., Darche, 1990). In the face of psychological distress, physical mechanisms are brought into action to allow the individual to cope with the stresses involved.

13.1.6 Blood

The sight of blood appears to have significance in the self-mutilative process and precipitates a change in mood (Simpson, 1975). The appearance of blood in the wound results in a sense of relief (van Moffaert, 1990). It is the blood from a self-inflicted wound that precipitates mood alteration (Feldman, 1988a). Blood from an accidental injury, the injury of another person or menstruation does not trigger a mood reversal. Self-mutilators react positively to the sight of their own blood (Favazza & Conterio, 1989; Gupta et al., 1986; Rosenthal et al., 1972; Simpson, 1975, 1976). It has been described as an "instantly accessible security blanket" (Feldman, 1988a, p.255). Alternatively, blood has been taken by the self-mutilator as proof of being real and alive (Kaplan & Fik, 1977).

When instant relief is not felt it is generally related to insufficient bleeding and some mutilators will continue to cut until there is enough blood to precipitate this change in mood (Kaplan & Fik, 1977; Simpson, 1975, 1976). If sufficient bleeding cannot be generated, feelings of dissatisfaction and continued negative feelings are reported (Rosenthal et al., 1972). Of the self-mutilators who felt unrelieved, all reported a compelling urge to continue self-mutilating (Schwartz et al., 1989).

The sight of the wound may serve the same purpose as the appearance of blood. In the case of superficial laceration, it may be the wound itself that provides the trigger from an alteration of mood (Kaplan & Fik, 1977). In other cases, a combination of the sight of blood and the appearance of a gaping wound are described as being important (Rosenthal et al., 1972; Simpson, 1975).

The sight of blood sometimes has been been likened to sexual experience in that the preceding emotional state is similar to an increase in tension and the sight of the blood is equated with orgasmic relief (Simpson, 1975). However, sexual arousal is rarely generated by self-mutilation (Favazza & Conterio, 1989; Feldman, 1988a).

13.1.7 Repersonalisation and tension reduction

The act of self-cutting is effectively therapeutic (Simpson, 1976). There is a rapid reduction of tension following the commission of the act and repersonalisation occurs for those who previously experienced a depersonalised state (Gold Jr, 1987; Graff & Mallin, 1967; Grunebaum & Klerman, 1967; Lion & Conn, 1982; Pao, 1969; Rosenthal et al., 1972; Simpson,

1976; van Moffaert, 1990). An act of self-mutilation is terminated when satisfication and relief is experienced and indeed, most self-mutilators seemed to be aware of what was necessary to end the negative emotional state (Rosenthal et al., 1972). Once the cycle is completed, self-mutilators appear quite normal (Graff & Mallin, 1967) and can function adequately (Walsh & Rosen, 1988).

The act of self-mutilation not only provides relief from painful emotional states and discomfort, it allows the self-mutilator to gain control after feeling out of control because of escalating tension and depersonalisation (Favazza & Conterio, 1989). Termination of the depersonalised state and tension relief are commonly stated reasons for engaging in the behaviour (Favazza & Conterio, 1989; Rosenthal et al., 1972). Typical explanations provided by self-mutilators for their behaviour include "I felt so tense, I had to do something" and "I did it because I knew I would feel relaxed afterwards" (Novotny, 1972). The understanding of the consequences of the behaviour in terms of relief of tension commonly precipitates the act (Gardner & Gardner, 1975).

Following an episode of self-mutilation, indifference to the resultant wounds has been reported despite strong reactions from others (Favazza & Conterio, 1989; Kaplan & Fik, 1977). Indeed, medical treatment may be refused (Kaplan & Fik, 1977). It also has been reported that self-mutilators are unwilling to examine the precipitants of the behaviour (Feldman, 1988a).

The reduction of tension that occurs with the act of self-mutilation is typically short-lived (Lion & Conn, 1982). Initial relief is followed by feelings of self-hatred, disappointment and fear of the consequences (Feldman, 1988a).

Approximately half of one sample of self-mutilators reported feeling embarrassed and ashamed following self-mutilative behaviour (Schwartz et al., 1989).

An act of self-mutilation does not alter the underlying psychopathology (Favazza & Conterio, 1989), it temporarily defuses the uncomfortable feelings associated with that psychopathology (Schwartz et al., 1989). When distress is again experienced because of psychopathology, the self-mutilator will again engage in self-injury in an attempt to relieve those symptoms (Favazza & Conterio, 1989). In this way a behavioural cycle develops. As self-mutilation develops into a tension-reducing habit, it becomes addictive (Favazza & Conterio, 1989; Graff & Mallin, 1967; Simpson, 1976; van Moffaert, 1990). Indeed, the majority (71%) of a large sample of female self-mutilators explained their mutilative behaviour as an addiction (Favazza & Conterio, 1989).

Self-mutilation is an effective means of communicating distress when verbal communication is difficult (Grunebaum & Klerman, 1967). While relief from tension is the primary goal of self-mutilation, the reactions of others is an important secondary gain (Grunebaum & Klerman, 1967; Walsh & Rosen, 1988).

13.2 The tension reduction model

Self-mutilation can best be understood as a drive reduction mechanism (Williams & Hart, in press). Every time a self-mutilator cuts him or herself and experiences a relief from tension, the behaviour is reinforced (Gardner & Gardner, 1975). The reinforcer is the reduction of arousal. Each time the

self-mutilator engages in tension-reducing self-inflicted injury, the self-mutilator is reinforced and the behaviour is strengthened. Each time the behaviour is reinforced, the likelihood that the self-mutilator will engage in such behaviour when faced with a similar emotional situation is increased. The effectiveness of the behaviour in reducing tension means that the behaviour is difficult to extinguish. This internal reinforcement is sufficient to strengthen and maintain the behaviour in the absence of any other external reinforcing components (Walsh & Rosen, 1988).

Discussion of the tension reduction model has been based on a psychological response. Self-mutilation has been reported to reduce psychological distress (Graff & Mallin, 1967; Grunebaum & Klerman, 1967; Lion & Conn, 1982; Pao,1969; Rosenthal et al., 1972; Simpson, 1976; van Moffaert, 1990). Although it has been implied that the tension reduction also relates to physiological arousal, this proposition has not been tested. A reduction of physiological arousal as a consequence of the self-mutilative act could substantially increase the reinforcing properties of self-mutilation and provide support for the proposition that self-mutilative behaviour acts as a drive-reduction mechanism.

CHAPTER FOURTEEN
THE PSYCHOPHYSIOLOGY OF SELF-MUTILATION

"One of the most challenging and important tasks for the mental health professional is the appropriate application of theory, investigative skills, and therapeutic expertise to relevant social problems."

(Kilpatrick, Veronen & Resick, 1979)

14. THE PSYCHOPHYSIOLOGY OF SELF-MUTILATION

14.1 Introduction

It is evident that the control of self-mutilative behaviour only can be gained through an understanding of the processes involved and the factors encouraging the existence and maintenance of the behaviour. To date, support for the tension reduction model comes from clinical and phenomenological reports. It is necessary to test the model. Clearly, it is not possible to measure psychophysiological arousal during an actual self-mutilative episode. It is proposed that the use of guided imagery of previous experiences of the self-mutilative act can tap the psychophysiological processes underlying the behaviour (Haines, Williams, Wilson & Brain, 1994).

Psychophysiological responses to an image or memory of an event have been demonstrated to simulate responses experienced during the actual execution of the act (Lang, 1979). For example, increased arousal was recorded when competitive swimmers were asked to imagine themselves to be swimming (Beyer, Weiss, Hansen, Wolf & Seidel, 1990). The nature of this imagery was unstructured. That is, subjects were asked to recall what it was like to be swimming but were not guided through the process. Further, similar autonomic nervous system responses were evident to actual target shooting, the concentration prior to shooting and mental imagery of shooting (Deschaumes-Molinaro, Dittmar & Vernet-Maury, 1991). In this study, all subjects were practised target shooters.

The content of guided imagery has been demonstrated to affect the psychophysiological response to that imagery. Guided imagery emphasising an active response by the individual to the event resulted in greater psychophysiological activity than imagery scripts which concentrated solely on stimulus detail (Borkovec & Hu, 1990; Hirota & Hirai, 1986; Lang, Kozak, Miller, Levin & McLean, 1980). Although there has been limited success in increasing psychophysiological response to imagery by increasing the number of stimulus modalities (Holzman & Levis, 1989), the efferent pattern of 'response' imagery has been reported to more closely follow script content (Lang et al., 1980). Indeed, training in response-oriented imagery ability has been undertaken to enhance psychophysiological arousal to imagery (e.g., Acosta & Vila, 1990; Miller, Levin, Kozak, Cook, McLean & Lang, 1987; Robinson & Reading, 1985; Smith & Over, 1990).

Focus on the physical properties of the imagery scene, or response imagery, in combination with imaging of an active participation in the scene by the individual have been demonstrated to enhance psychophysiological arousal to imagery (Bauer & Craighead, 1979). Greater psychophysiological response has been evident to imagery scenes with which the individual subject is familiar (e.g., Deschaumes-Molinaro, Dittmar & Vernet-Maury, 1992). Indeed, personally relevant imagery has been demonstrated to be superior to standard imagery in the ability to elicit realistic psychophysiological responses (Contrada, Hilton & Glass, 1991; Pitman, Orr, Forgue, Altman & de Jong, 1987). It appears that the use of personalised imagery largely overcomes the limitations of poor imagery ability (Miller et al., 1987). That is, even individuals with poor imagery ability have been demonstrated to

respond appropriately to personalised guided imagery. Personalised imagery scenes have been employed to elicit realistic arousal to stress imagery (Passchier & van der Helm-Hylkema, 1981) and has been used to distinguish the arousal of individuals diagnosed with PTSD from those with other anxiety disorders (Pitman, Orr, Forgue, Altman, de Jong & Herz, 1990).

There is some evidence that the more specific the behaviour to be imaged, the more realistic is the psychophysiological response to that imagery (e.g., Weerts & Lang, 1978). In a comparison of different types of phobic imagery, simple phobic subjects demonstrated more arousal to imagery than social phobics, who in turn demonstrated more arousal than agoraphobics (Cook, Melamed, Cuthbert, McNeil & Lang, 1988). As the response decreased with type of phobia, there was a concomitant increase in the elements associated with the phobia.

The use of personalised imagery scripts in eliciting psychophysiological arousal was further developed and utilised in the successful insanity defense of a young woman charged with fillicide (R.v. Horton, 1986). Imagery depicting episodes of punitive interaction between this mother and her three year old child were divided into four stages: setting the scene, approach to the behaviour, actual incident, and consequence or resolution of the punitive interaction. It was of some significance to the outcome of this case that there was a decrease in arousal during the third and fourth stages of imagery. This young woman displayed a substantial reduction in tension during the incident stage of the punishment script. During this stage she was asked to recall and was guided through episodes of punishment where she had hit her child and threatened to kill him. The reduction of tension at this and

the subsequent stage was postulated to have reinforced her escalating punitive behaviour. The court accepted that this vulnerable young woman's behaviour had been shaped to the point where a tragic outcome was inevitable.

This was the first time that the components of a single behaviour had been broken down into distinct stages when using guided imagery. The methodology used in this case was then applied to the investigation of arousal patterns during punitive and nonpunitive parent-child interactions with parents of high and low potential for physical abuse (Williams, Wilson, Montgomery & Batik, 1989). Progression through stages allowed a gradual and realistic increase in the intensity of the emotional responses. It was recognised that this methodology could be applied to a variety of psychological disorders and symptoms.

Using this methodology, psychophysiological arousal patterns associated with the self-mutilative process and the tension reduction model are amenable to testing. Response patterns can be hypothesised. The model indicates that psychophysiological arousal should increase steadily during the first two stages of imagery. During the incident stage of imagery, where actual self-injury is described, arousal should rapidly decrease as an immediate reduction in tension is recalled. This low level of arousal should continue through the final stage of imagery.

The arousal patterns of an actual episode of cutting would be predicted to be quite different to those of other imaged events. Indeed, differences in psychophysiological arousal to neutral and stressful imagery have been demonstrated (e.g., Sutherland & Harrell, 1986-87). No significant variation in arousal across stages would be expected during neutral imagery (e.g., making

a cup of coffee). It is likely that during an accidental injury script, arousal should remain low through stages one and two, increasing at the incident stage with the shock of injury and remaining high throughout the consequence stage. Description of a stressful event (e.g., an aggressive interaction with another person) should elicit a steady increase in arousal throughout the first three stages of imagery, culminating in the incident stage, and remaining high throughout stage four (Williams et al., 1989).

This study aims to investigate patterns of psychophysiological arousal related to the self-mutilative act. Self-mutilation arousal patterns will be compared with those elicited during control scenes using the four stage methodology (Williams et al., 1989), employing a combination of response and stimulus scripts (Lang, 1979; Lang et al., 1980) depending on the information provided by the individual subject. While it is anticipated that psychophysiological arousal to an episode of self-mutilation will vary from control scenes, there is no evidence to suggest that self-mutilators will react differently to control subjects to the control scenes. Psychological indices related to the tension reduction model also will be examined.

METHOD

14.2.1 Subjects

Forty-six male subjects participated in this investigation, 18 self-mutilators (16 prisoners and 2 self-mutilators with no history of incarceration), 15 non-mutilating prisoner control subjects and 13 normal control subjects with no history of self-mutilation or incarceration.

Groups were matched for imagery ability and age as psychophysiological response has been found to alter as a function of age (Arena, Blanchard, Andrasik & Myers, 1983). It was not deemed necessary to match subject groups for IQ as an extensive search of a number of literature databases demonstrated no evidence of a relationship between imagery ability and IQ.

14.2.2 Design

The experiment constituted a three group factorial design which aimed to investigate differences in psychophysiological response to three different imaged situations. In addition, to test the tension reduction model, a within group factor of the design aimed to investigate the pattern of self-mutilators' arousal during a visualised self-mutilative act, as compared with patterns of arousal exhibited during imagery concerning other situations.

14.2.3 Materials

The Betts QMI Vividness of Imagery Scale (Sheehan, 1967) and the Gordon Test of Visual Imagery Control (Gordon, 1949) were administered to assess imagery ability.

Visual Analogue Scales (VASs) (McCormack, Horne & Sheather, 1988) were used to measure subjective reaction to imagery. These scales reflect those subjective responses presented in the literature as being associated with the preceding emotional state prior to an act of self-mutilation. VAS ratings represented a subjective score (from 0 to 100) of response to imagery on bipolar dimensions: Relaxed/Tense, Relaxed/Anxious, Calm/Angry,

Unafraid/Afraid, Happy/Sad, Normal/Unreal, and Relieved/Uptight. The dimension of Normal/Unreal assessed depersonalisation. A higher score reflected more negative experience.

The Stait-Trait Anxiety Scale (STAI) (Spielberger, 1983) was employed to determine general anxiety levels of the three groups. The test provides two subscales, one for state or situation-specific anxiety, and one for trait anxiety or the degree to which feelings of anxiety are stable over time. This test is widely used and the psychometrics indicate that it is sound (Gregory, 1992). Test-retest reliability is above .70 for trait anxiety and up to .62 for state anxiety.

A Stimulus-Response Inventory was included to determine the degree and awareness of arousal to events which would normally induce anxiety and hostility. Stimulus-Response Inventories for Anxiousness (Endler, Hunt & Rosenstein, 1962; Endler & Magnusson, 1976) and Hostility (Endler & Hunt, 1968) were modified to include only those stimuli relevant to a prison population and excluding all but the psychophysiological items. Excluded items related to psychological reaction only.

14.2.4 Imagery Scripts

Subjects were interviewed to collect information for personalised imagery scripts for four separate events. All groups were interviewed regarding the following: (1) neutral event (e.g., making a cup of coffee or brushing teeth); (2) accidental injury (e.g., an accident with a kitchen knife); and (3) an aggressive event (e.g., an argument with a significant other). Self-mutilation subjects were also interviewed regarding a past self-mutilative

episode (i.e., a self-cutting episode), either the most recent episode or the episode most vividly recalled. Subjects were requested to describe all these events in terms of the environment, the subjects' behaviours, and their emotional and physiological reactions. Care was taken during interviews not to ask leading questions. The information collected during interview was time limited to the minutes before the incident, the actual incident and the minutes following the incident in order to devise a guided imagery script that could provide a continuous sequence of events.

Imagery scripts were then composed of a combination of response and stimulus information extracted from subject interviews. All scripts were personalised. It has been demonstratd that instructional manipulation can influence psychophysiological response to imagery (Beiman, 1976). Therefore, only those elements reports by individuals during interview were included in the personalised scripts in the wording used by the subjects. In this way, subjects were not directed to experience reactions not previously recalled. In addition, no response imagery training was conducted. Each imagery script was divided into four distinct stages: setting the scene - a description of the environment and behaviours at the onset of the event; the approach to the behaviour - a description of the events leading up to the incident and the reactions to those events; the actual incident - a description of the behaviours and reactions associated with the actual event; and the consequence of the event - a description of the reactions to the event and the specific behaviours performed after the incident. Self-mutilation subjects were administered all scripts. Other groups received only scripts 1, 2 and 3. Examples of all script types are included in Appendix E.

14.2.5 Apparatus and psychophysiological recording

Psychophysiological measures included: Finger Blood Volume (FBV), Finger Pulse Amplitude (FPA), Heart Rate (HR), Maximum Heart Rate recorded on Cardiotachometer (CMAX), Minimum Heart Rate recorded on Cardiotachometer (CMIN), Respiration in breaths per minute (RESP) and Skin Resistance Level (SRL). The cardiotachometer provides a display of phasic heart rate by measuring the time interval between the last two beats of the hearts and converting that figure to a rate in beats per minute (Stern, Ray & Davis, 1980). In this way, CMAX is a measure of the maximum heart rate in beats per minute during the scoring period and CMIN is a measure of the minimum heart rate in beats per minute during the scoring period.

Measurements were recorded using an 8-channel Dynograph recorder with a paper speed of 2.5mm/sec. FBV and FPA were recorded using a Grass photoelectric finger plethysmograph attached to the middle finger of the subject's non-dominant hand. The time constant for the FPA recording was .3. HR measures were extracted from the FPA record. Due to the manual scoring procedure, it was more efficient to extract the heart rate from the FPA record. Cardiotachometer was recorded using miniature Gereonics Ag/AgCl electrodes fitted at the second rib on both sides on the torso. An electrode placed on the left mastoid process was used as an earth reference. RESP was measured using a Vitalog Respiration Sensor band fitted around the upper torso, mediated by a Vitalog Respiration Amplifier. The output of the Vitalog Respiration Amplifier was input to the Dynograph recorder. SRL was measured by 2 Med Associate 10mm diameter Ag/AgCl cup electrodes connected to the finger tips of the first and third fingers of the non-dominant

hand. The 10mm diameter of the electrodes represented electrode paste contact with the skin. ECI Electro-Gel was used. FBV, FPA and SRL measures were taken using the non-dominant hand as anxiety reportedly reflects activation in the non-dominant hemisphere of the brain (Brende, 1982).

14.2.6 Procedure

Subject script interviews were conducted in the laboratory to allow familiarisation with surroundings and equipment. At the recording session, electrodes were applied and subjects were instructed to sit quietly and calmly while initial recordings were made. Each step in this process was explained to subjects prior to it occurring. Subjects were then informed that a number of imagery scripts would be administered based on the information presented at interview, that the information had been divided into four stages, that each stage would last for approximately one minute and that instructions to close their eyes and to open their eyes and to switch off the scene would be included. They were instructed to listen carefully to the information presented and to picture this material as clearly as possible.

Recordings included 30 seconds of pre-imagery baseline. The baseline period was recorded with eyes open. Each stage of each script was of approximately 60 seconds duration. Each script had a 10 second pause between stages during which the subjects were permitted to open their eyes. The between-stage pause was brief to allow continuity of script content. The timing of the administration of scripts was comparable for all groups. Scripts were administered in a counterbalanced order to overcome problems of adaptation/habituation. Following the presentation of each script type,

subjects were instructed to complete VASs, rating their subjective responses to each stage of the previously presented script. To facilitate this rating, key elements in each script stage were repeated prior to ratings for that stage. VAS ratings were made at the end of the script presentation rather than between stages to maintain imagery continuity. Script interviews and administration of scales ranged from one and one half to three hours duration. The psychophysiological recording sessions generally were completed within two hours.

At the conclusion of the experiment, each subject was debriefed. Examples of each subject's psychophysiological recordings were presented and explanations given. Subjects were reminded of contact points for any possible concerns.

14.2.7 Scoring and transformation of psychophysiological data

Scores were extracted from a 30 second period of each stage of each imagery script. As scripts were personalised, scoring periods represented the part of each stage containing the most relevant information for that individual. Most commonly this period occurred approximately 15-20 seconds into each script stage.

Three classes of psychophysiological data were considered. Single measures of CMAX and CMIN were not transformed. Average data (HR, RESP, SRL) represented mean level of psychophysiological response to imagery during each scoring period including a 30 second pre-stimulus baseline measure for each script type. SRL scores were transformed to Skin Conductance Levels (SCL) as this is the preferred measure of arousal

(Andreassi, 1989). Change scores were used for FBV and FPA. Absolute measures on these variables have little applicability when comparing arousal responses between subjects and between scripts. Change data examines subjects' degree of reactivity to script stages by calculating the difference between pre-stimulus baseline scores and average response scores elicited throughout each script stage. For FPA, the amplitude of each pulse during the scoring period was measured in millimetres and these measurements were averaged over the scoring period. The differences between baseline and each script stage then were divided by the baseline score to control for baseline differences between subjects. Raw scores of SCL and FBV were calculated for each second and averaged over the 30 second period. FBV scores then were converted to change scores from baseline.

A significance criterion of .05 was adopted for all analyses and a Huynh-Feldt correction was applied to all Analyses of Variance (the correction did not alter a significant result to non-significant for any analysis). All analyses were two-tailed. Cardiac measures of one self-mutilating subject were unable to be scored because of cardiac arrhythmia.

Initially, Group (self-mutilation, prisoner control, normal control) by Script (neutral, accidental injury, aggression) by Stage (scene setting, approach, incident, consequence) analyses of variance were conducted for each of the psychophysiological and subjective dependent variables to determine if differences existed. The main aim of these analyses was to determine if self-mutilators responded in an abnormal or aberrant manner to life events also experienced by other groups. Secondly, a within group analysis was employed to test the tension reduction model. In this design, Script (self-

mutilation, neutral, accidental injury, aggression) by Stage (scene setting, approach, incident, consequence) analyses of variance were conducted. While the number of ANOVAs was large, the ratio of subjects to dependent variables prevented the use of MANOVA (Tabachnick & Fiddel, 1989). Fisher LSD and Bonferroni/Dunn post-hoc comparisons were made.

RESULTS

The mean age of the self-mutilators was 21.78 years (SD=4.73); that of the prisoner controls 22.47 years (SD=5.22); and normal controls 21.61 years (SD=4.70). The three groups did not significantly differ in age ($F(2,45)=0.12$, $p=.882$).

There also were no significant differences between the groups in terms of vividness of imagery ($F(2,47)=1.11$, $p=.339$) or ability to manipulate or control imagery ($F(2,44)=1.26$, $p=.294$). Table 28 presents the means scores and standard deviations for the three groups on the two imagery scales.

Table 28: The mean scores and standard deviations for the Betts and Gordon imagery scales for the three groups.

Imagery scale	Self-mutilators	Prisoner controls	Normal controls
Betts	100.44	86.47	95.00
	(29.96)	(26.85)	(23.40)
Gordon	9.17	9.47	10.71
	(2.97)	(3.11)	(2.30)

Examination of the STAI scores demonstrated significant differences between groups for both State Anxiety ($F(2,44)=5.95$, $p=.005$) and Trait Anxiety ($F(2,44)=4.95$, $p=.011$). For State Anxiety, both self-mutilators and prisoner controls scored significantly higher than normal controls but self-mutilators and prisoner controls did not differ from each other. For Trait Anxiety, the self-mutilators scored significantly higher than the normal controls. Prisoner controls achieved intermediate scores and did not differ from the other two groups. Table 29 presents the means and standard deviations for the three groups on the STAI.

Table 29: The mean scores and standard deviations on the subscales of the STAI for the three groups.

Subscale	Self-mutilators	Prisoner controls	Normal controls
State Anxiety	47.67 (17.53)	41.13 (12.18)	30.79 (8.89)
Trait Anxiety	50.17 (13.97)	42.47 (12.67)	36.50 (9.23)

No significant differences were evident between groups on general measures of psychophysiological arousal: systolic blood pressure ($F(2,43)=0.16$, $p=.849$); diastolic blood pressure ($F(2,43)=1.11$, $p=.338$); and pulse rate ($F(2,43)=2.28$, $p=.115$). The means and standard deviations for each group for these measures are presented in Appendix F.

Examination of the S-R Inventory data demonstrated no differences between groups on either the total score ($F(2,41)=0.19$, $p=.825$) or on the individual items. The mean scores and standard deviations of the three

groups for the total scale are shown in Table 30 and the mean scores and standard deviations of the three groups on the individual items are shown in Appendix G. These results indicate that all groups were as aware as each other of their psychophysiological reactions to stressful events and their perceptions of the degree of psychophysiological arousal were comparable.

Table 30: The mean scores and standard deviations on the total score of the S-R Inventory for the three groups.

	Self-mutilators	Prisoner controls	Normal controls
Mean	137.11	136.54	128.31
SD	34.60	56.28	33.37

Response to imagery

Examination of the VAS measures of Unclear/Clear and Not Close/Very Close demonstrated that clarity of imagery and approximation of script content to real life events were within acceptable limits. The means and standard deviations for these VAS scales for the three groups for each stage of each script are presented in Appendix H.

The means and standard deviations of the psychophysiological responses of all groups to each stage of the scripts are presented in Table 31 and the subjective responses in Table 32. The complexity of the tables prevents any indication of significant results to be included. All significant results will be discussed in the text.

Table 31: The mean scores and standard deviations of the psychophysiological measures for each stage of each script for all groups.

		SCRIPTS															
		Self-mutilation				Neutral				Accidental Injury				Aggression			
DVAR	GROUP	Scene	Approach	Incident	Conseq	Scene	Approach	Incident	Conseq	Scene	Approach	Incident	Conseq	Scene	Approach	Incident	Conseq
FBV	S-M	-1.04	-1.12	-2.71	-3.43	-0.46	-0.51	-0.84	-0.72	-0.28	-0.22	-0.06	-0.04	-0.08	-0.79	-0.01	-0.08
		(2.07)	(2.79)	(4.38)	(4.72)	(1.05)	(2.55)	(3.40)	(3.20)	(1.35)	(2.18)	(3.76)	(4.73)	(1.40)	(2.60)	(3.34)	(3.73)
	P-C					-0.30	-0.12	-0.39	-0.71	-0.03	-0.15	-0.20	0.22	0.15	0.93	0.55	0.56
						(0.68)	(1.55)	(2.12)	(3.20)	(0.99)	(1.37)	(1.53)	(1.97)	(0.76)	(2.91)	(3.07)	(3.45)
	N-C					-0.06	-0.10	0.29	0.48	0.15	-0.02	-0.38	-0.80	-0.35	-0.52	-1.33	-1.54
						(1.32)	(2.38)	(2.50)	(3.20)	(0.79)	(2.16)	(2.90)	(2.85)	(0.96)	(1.74)	(4.23)	(3.93)
FPA	S-M	0.19	0.19	-0.00	0.03	0.06	-0.05	-0.05	-0.02	0.11	-0.03	-0.05	-0.09	0.19	0.17	0.05	-0.02
		(0.23)	(0.76)	(0.63)	(0.41)	(0.26)	(0.33)	(0.37)	(0.27)	(0.17)	(0.28)	(0.38)	(0.33)	(0.28)	(0.32)	(0.42)	(0.46)
	P-C					-0.09	-0.33	-0.42	-0.33	0.14	0.03	0.06	-0.10	0.21	0.20	0.21	0.11
						(0.35)	(0.38)	(0.38)	(0.42)	(0.29)	(0.43)	(0.56)	(0.60)	(0.26)	(0.50)	(0.46)	(0.50)
	N-C					0.23	0.15	0.01	0.04	0.27	0.32	0.41	0.22	0.25	0.36	0.34	0.30
						(0.10)	(0.16)	(0.34)	(0.35)	(0.12)	(0.15)	(0.16)	(0.29)	(0.18)	(0.19)	(0.22)	(0.28)
HR	S-M	75.60	75.07	73.53	73.27	74.00	74.27	74.40	74.00	74.33	74.27	74.80	74.80	74.53	74.40	76.13	75.60
		(13.18)	(12.69)	(12.83)	(12.97)	(12.44)	(11.48)	(12.29)	(11.06)	(11.45)	(12.35)	(11.80)	(11.20)	(12.57)	(12.47)	(13.89)	(11.19)
	P-C					72.23	71.23	70.85	71.23	73.92	72.00	73.00	71.92	75.77	73.54	72.46	73.23
						(8.15)	(10.22)	(9.38)	(9.85)	(10.23)	(10.80)	(10.12)	(10.44)	(12.28)	(9.74)	(9.70)	(9.92)
	N-C					68.00	65.18	67.64	67.18	67.00	67.36	68.82	66.36	68.18	71.00	70.91	69.27
						(12.68)	(11.92)	(12.39)	(11.27)	(10.91)	(11.05)	(10.87)	(11.59)	(11.26)	(14.66)	(15.03)	(12.75)
CMAX	S-M	85.20	84.80	81.73	83.13	83.00	82.00	83.27	84.20	83.20	83.53	82.40	83.40	84.07	82.87	84.20	83.87
		(12.22)	(12.62)	(12.95)	(12.34)	(12.77)	(11.75)	(10.82)	(10.45)	(10.75)	(11.98)	(10.91)	(11.02)	(11.42)	(12.30)	(13.12)	(11.64)
	P-C					84.54	82.15	81.92	82.38	86.08	84.46	85.15	85.54	85.15	86.61	86.69	85.08
						(11.37)	(9.24)	(10.17)	(10.55)	(10.17)	(11.48)	(9.86)	(13.65)	(9.90)	(11.43)	(12.63)	(10.50)
	N-C					82.09	80.09	80.64	81.82	78.64	80.27	82.00	82.64	81.00	85.36	84.64	84.27
						(14.53)	(16.26)	(14.64)	(14.18)	(12.82)	(13.94)	(11.21)	(13.14)	(13.10)	(16.88)	(13.89)	(16.06)

Table 32 continued

CMIN	S-M	70.27	70.67	69.47	67.93	69.33	69.53	69.33	70.07	69.93	69.20	69.40	69.80	68.53	69.27	69.60	68.73
		(14.57)	(15.40)	(15.15)	(15.46)	(14.33)	(14.40)	(14.69)	(14.07)	(13.07)	(14.19)	(13.57)	(13.72)	(14.20)	(13.41)	(14.85)	(13.46)
	P-C					66.77	68.15	68.15	66.92	69.69	69.85	68.61	68.15	69.77	69.92	67.54	68.61
						(10.42)	(13.96)	(12.05)	(13.67)	(13.45)	(14.51)	(15.07)	(13.75)	(14.44)	(11.84)	(13.78)	(13.54)
	N-C					62.45	59.82	61.54	61.36	62.82	61.27	62.82	63.00	62.91	66.18	67.27	64.00
						(11.96)	(10.23)	(11.68)	(10.77)	(10.22)	(9.09)	(10.47)	(12.43)	(11.54)	(14.59)	(15.01)	(14.21)
RESP	S-M	18.41	20.22	18.50	17.72	17.44	18.25	17.84	18.34	17.50	17.72	19.44	18.53	17.86	18.72	19.34	18.91
		(4.47)	(5.49)	(5.30)	(4.57)	(4.00)	(2.95)	(3.78)	(3.19)	(5.50)	(4.55)	(4.09)	(3.30)	(3.64)	(5.05)	(4.80)	(4.34)
	P-C					15.41	16.27	16.18	15.54	16.64	16.27	17.68	15.64	16.14	16.36	18.36	16.27
						(4.80)	(4.20)	(4.56)	(4.46)	(3.93)	(4.80)	(6.55)	(4.20)	(4.18)	(5.37)	(7.74)	(6.23)
	N-C					14.18	14.36	14.54	14.18	15.00	15.41	16.45	15.91	14.91	15.36	16.64	15.36
						(4.83)	(5.61)	(4.32)	(4.33)	(2.68)	(4.12)	(3.78)	(2.98)	(3.99)	(4.32)	(4.20)	(4.39)
SCL	S-M	18.61	19.39	17.20	16.94	18.78	17.61	17.73	17.86	17.90	17.10	17.44	17.50	18.73	18.30	18.39	17.31
		(9.50)	(10.13)	(7.71)	(7.74)	(10.08)	(8.22)	(9.06)	(9.04)	(9.71)	(8.04)	(7.77)	(7.97)	(10.81)	(10.87)	(10.71)	(8.86)
	P-C					15.40	15.44	15.94	16.82	17.03	16.58	17.64	17.64	17.43	16.79	14.45	17.85
						(5.33)	(5.65)	(6.38)	(6.94)	(8.27)	(7.94)	(8.60)	(8.77)	(10.06)	(11.08)	(6.15)	(10.37)
	N-C					14.07	13.95	14.13	13.99	14.50	14.74	15.58	15.18	15.41	15.88	15.87	15.56
						(5.41)	(5.67)	(5.79)	(5.80)	(6.59)	(6.69)	(7.02)	(6.71)	(5.72)	(5.53)	(5.57)	(5.90)

FBV = mV
FPA = mV
HR = Beats per minute
CMAX = Beats per minute
CMIN = Beats per minute
RESP = Breathes per minute
SCL = mmho

Table 32: The mean scores and standard deviations of the subjective measures for each stage of each script for all groups.

		SCRIPTS															
		Self-mutilation				Neutral				Accidental Injury				Aggression			
DVAR	GROUP	Scene	Approach	Incident	Conseq	Scene	Approach	Incident	Conseq	Scene	Approach	Incident	Conseq	Scene	Approach	Incident	Conseq
RELAXED/ TENSE	S-M	68.62	71.75	56.50	38.62	25.31	17.75	12.12	19.94	24.69	50.56	73.62	47.75	50.25	67.12	81.50	54.19
		(26.64)	(30.50)	(31.44)	(35.78)	(20.47)	(19.28)	(12.84)	(24.23)	(21.80)	(30.96)	(23.18)	(32.84)	(32.63)	(28.90)	(24.35)	(31.92)
	P-C					17.54	14.45	11.09	10.54	35.82	44.73	73.82	66.73	42.91	80.36	88.73	65.91
						(28.19)	(11.36)	(11.27)	(8.55)	(40.47)	(35.82)	(25.27)	(25.75)	(32.30)	(30.09)	(13.57)	(31.04)
	N-C					18.90	16.60	19.40	14.70	20.50	32.70	69.20	69.40	52.90	63.60	83.50	67.50
						(14.84)	(14.86)	(16.91)	(11.93)	(16.08)	(24.79)	(16.12)	(18.80)	(35.17)	(12.43)	(12.43)	(21.41)
RELAXED/ ANXIOUS	S-M	73.00	69.50	66.94	38.37	20.69	29.25	14.87	18.81	34.75	51.00	69.00	55.00	48.50	65.62	71.31	60.81
		(20.64)	(28.96)	(28.44)	(32.68)	(14.88)	(29.11)	(15.02)	(17.32)	(28.59)	(30.10)	(22.05)	(31.64)	(29.88)	(27.63)	(30.32)	(27.41)
	P-C					13.36	25.73	15.18	10.81	33.82	59.27	71.00	77.82	47.18	80.27	85.36	72.00
						(15.38)	(27.44)	(23.04)	(9.76)	(39.49)	(32.85)	(24.35)	(20.78)	(33.60)	(27.94)	(16.62)	(28.38)
	N-C					17.50	15.50	21.20	15.60	24.10	31.00	80.40	72.30	46.40	65.50	78.70	64.80
						(12.30)	(12.95)	(19.48)	(12.52)	(20.12)	(27.07)	(15.87)	(18.73)	(29.99)	(26.78)	(15.10)	(16.83)
CALM/ ANGRY	S-M	76.37	67.81	60.12	35.25	18.25	20.00	14.81	20.87	20.87	36.31	62.19	47.62	55.12	74.06	85.50	65.81
		(26.59)	(28.81)	(36.08)	(32.89)	(16.58)	(18.24)	(14.49)	(22.04)	(21.15)	(33.12)	(27.32)	(26.54)	(38.79)	(26.79)	(13.38)	(29.83)
	P-C					13.64	10.00	12.27	9.54	22.36	33.54	51.09	53.09	39.18	82.00	90.73	72.36
						(12.57)	(8.34)	(15.29)	(9.19)	(28.82)	(33.51)	(25.59)	(31.23)	(37.61)	(25.27)	(10.92)	(27.05)
	N-C					14.00	15.60	15.00	15.00	20.40	25.20	63.80	64.40	41.60	62.30	88.40	74.10
						(11.58)	(12.82)	(13.05)	(11.69)	(15.42)	(18.19)	(15.38)	(11.94)	(34.23)	(28.97)	(8.50)	(19.19)
UNAFRAID/ AFRAID	S-M	48.19	53.75	38.69	36.50	14.69	13.31	13.81	15.19	20.75	26.37	53.81	45.56	21.19	32.62	26.06	36.25
		(37.85)	(37.25)	(37.70)	(37.60)	(16.55)	(15.47)	(14.67)	(16.67)	(17.41)	(29.20)	(35.87)	(35.72)	(21.30)	(30.21)	(31.48)	(33.91)
	P-C					8.18	15.27	15.54	14.64	18.36	16.09	66.54	59.45	20.64	37.73	44.91	50.09
						(7.82)	(14.53)	(15.42)	(14.48)	(28.35)	(15.01)	(30.60)	(34.77)	(17.97)	(28.31)	(33.13)	(31.41)
	N-C					15.40	16.10	19.50	28.00	30.00	37.80	72.40	61.50	34.00	38.20	59.50	47.50
						(11.09)	(13.45)	(15.99)	(19.30)	(20.85)	(25.40)	(17.54)	(19.51)	(32.55)	(25.77)	(29.36)	(26.22)

Table 33 continued

HAPPY/ SAD	S-M	80.44	77.19	70.75	40.87	24.37	34.50	33.44	30.87	26.19	26.94	50.94	43.31	36.25	46.94	49.87	54.69
		(19.24)	(20.91)	(27.73)	(30.24)	(19.69)	(26.74)	(27.30)	(23.85)	(23.67)	(20.92)	(27.45)	(32.26)	(30.25)	(30.00)	(30.72)	(29.01)
	P-C					25.00	26.00	21.27	16.91	21.36	23.00	54.82	63.09	31.82	56.36	61.45	65.27
						(21.44)	(21.61)	(20.95)	(17.11)	(23.77)	(18.94)	(32.11)	(25.31)	(21.18)	(26.38)	(26.03)	(21.78)
	N-C					23.10	31.80	32.30	31.40	18.10	25.50	68.30	62.20	33.70	56.00	72.70	77.90
						(22.74)	(18.87)	(18.77)	(18.86)	(16.20)	(18.51)	(13.44)	(7.30)	(30.16)	(30.40)	(19.03)	(19.30)
NORMAL/ UNREAL	S-M	77.44	69.81	71.12	54.25	19.06	15.25	19.12	17.81	32.75	52.69	61.50	44.56	34.12	58.69	65.56	35.69
		(17.31)	(26.87)	(26.93)	(32.28)	(18.26)	(16.31)	(24.78)	(18.89)	(30.104)	(33.99)	(32.52)	(31.33)	(30.99)	(29.40)	(31.39)	(30.94)
	P-C					13.36	16.27	18.00	9.82	30.18	31.91	54.45	50.18	37.27	58.09	51.09	53.36
						(16.84)	(18.32)	(18.78)	(8.45)	(36.73)	(30.92)	(31.51)	(35.56)	(27.57)	(39.57)	(36.60)	(35.63)
	N-C					25.50	21.90	22.00	18.70	17.90	25.20	41.90	33.20	34.90	42.20	44.80	45.40
						(26.74)	(22.20)	(20.42)	(15.09)	(13.57)	(21.90)	(29.65)	(24.74)	(22.31)	(27.65)	(26.54)	(28.30)
RELIEVED/ UNTIGHT	S-M	81.94	78.19	42.56	38.87	28.37	32.06	28.12	27.94	40.00	45.81	58.94	44.19	63.37	73.69	76.56	46.19
		(14.58)	(15.34)	(38.41)	(35.20)	(29.95)	(29.22)	(26.44)	(23.36)	(33.15)	(32.37)	(33.85)	(32.87)	(29.87)	(28.64)	(25.22)	(35.90)
	P-C					20.73	22.45	20.18	20.18	50.36	60.82	68.73	60.00	64.45	80.36	81.64	72.73
						(21.13)	(23.33)	(21.67)	(21.43)	(31.05)	(32.14)	(22.98)	(20.62)	(30.16)	(27.41)	(16.95)	(31.85)
	N-C					39.60	41.10	40.40	41.10	42.60	44.10	66.10	53.50	58.00	71.80	86.30	69.20
						(14.03)	(8.62)	(6.48)	(8.95)	(10.58)	(12.37)	(14.64)	(27.46)	(25.88)	(20.42)	(8.83)	(22.99)

Comparison of groups to control scripts

As a control measure, it was important to establish that self-mutilators did not demonstrate aberrant arousal patterns to all imaged situations. It was predicted that there would be no significant differences between groups in psychophysiological response to the control imagery scripts (neutral, accidental injury and aggression). Only one significant effect for group was demonstrated (F(2,37)=8.18, p=.001). In this case, for FPA, self-mutilators significantly differed from normal controls (F(1,37)=10.49, p=.002), as did the prisoner controls (F(1,37)=14.67, p=.000). The two prisoner groups did not significantly differ.

There was a significant main effect for script type for FPA (F(2,74)=8.17, p=.001). Significant differences were evident between neutral and accidental injury scripts (F(1,74)=6.69, p=.012) and neutral and aggression scripts (F(1,74)=15.86, p=.000). No difference was evident between accidental injury and aggression scripts. However, there was no interaction between script type and group. In addition, there was a main effect for stage (F(3,111)=6.78, p=.001) but no interaction between stage and subject type. Finally, for FPA, there was a significant interaction between script type and stage (F(6,222)=2.67, p=.018). However, when group was added to this equation, no interaction was evident.

For HR, there was a significant main effect for script type (F(2,72)=4.14, p=.025). A significant difference was demonstrated between the neutral and aggression scripts (F(1,72)=8.00, p=.008) and a trend towards significance for the accidental injury and aggression scripts (F(1,72)=3.51, p=.070). Again, there was no interaction between script type and group.

For CMAX, the main effect for script type also was significant ($F(2,72)=3.75$, $p=.030$). In this instance, a significant difference was evident between the neutral and aggression scripts ($F(1,72)=7.31$, $p=.009$) and a trend towards significance for the accidental injury and aggression scripts ($F(1,72)=3.01$, $p=.089$). An effect of group was not evident with no interaction being demonstrated between script type, stage and group.

There was a significant main effect of script type for RESP ($F(2,70)=4.09$, $p=.022$). Significant differences were evident between neutral and accidental injury scripts ($F(1,70)=4.87$, $p=.032$) and neutral and aggression scripts ($F(1,70)=7.17$, $p=.010$). No difference was evident between accidental injury and aggression scripts. There was no interaction between script type and group. In addition, there was a main effect for stage ($F(3,105)=7.87$, $p=.000$) but no interaction between stage and group.

To summarise these results, there was only one demonstrated difference in psychophysiological response, FPA, to control imagery between the groups. On the basis of these results, it would be difficult to argue that self-mutilators respond psychophysiologically in a manner different to other groups to imagery of events experienced by all three groups. In terms of psychophysiological response, self-mutilators have similar response patterns to non-mutilating groups.

While there were significant main effects for the type of script on each of the VASs (Relaxed/Tense: $F(2,68)=111.66$, $p=.000$; Relaxed/Anxious: $F(2,68)=86.78$, $p=.000$; Calm/Angry: $F(2,68)=1119.12$, $p=.000$; Unafraid/Afraid: $F(2,68)=26.522$, $p=.000$; Happy/Sad: $F(2,68)=21.00$, $p=.000$; Normal/Unreal: $F(2,68)=28.47$, $p=.000$; Relieved/Uptight: $F(2,68)=52.452$, $p=.000$), there was

no interaction between type of script and subject group for any of the VAS measures. Significant main effects for the stage of script were evident for all VAS measures (Relaxed/Tense: $F(3,102)=18.27$, $p=.000$; Relaxed/Anxious: $F(3,102)=23.68$, $p=.000$; Calm/Angry: $F(3,102)=28.40$, $p=.000$; Unafraid/Afraid: $F(3,102)=28.16$, $p=.000$; Happy/Sad: $F(3,102)=42.64$, $p=.000$; Normal/Unreal: $F(3,102)=8.573$, $p=.000$; Relieved/Uptight: $F(3,102)=8.94$, $p=.000$). No interactions were demonstrated between stage of script and subject group.

To summarise these results, it is evident that while there are variations in subjective response to the different scripts and to the stages of the scripts, all subjects responded in a similar way. There is nothing to suggest that self-mutilators evidenced a differential reaction to the control events. However, there were significant interactions between script type and stage of script for six of the seven VASs with a trend towards significance for the final measure (Relaxed/Tense: $F(6,204)=11.25$, $p=.000$; Relaxed/Anxious: $F(6,204)=9.84$, $p=.000$; Calm/Angry: $F(6,204)=12.34$, $p=.000$; Unafraid/Afraid: $F(6,204)=9.83$, $p=.000$; Happy/Sad: $F(6,204)=10.92$, $p=.000$; Normal/Unreal: $F(6,204)=4.53$, $p=.000$; Relieved/Uptight: $F(6,204)=2.05$, $p=.063$). The patterns of interaction can be examined in Appendix I.

Self-mutilation group

Comparison of psychophysiological response between scripts

For the self-mutilators, a comparison was initially made between responses to self-mutilation imagery and control imagery. Within group ANOVAs (with Huynh-Feldt correction) performed on self-mutilators' data investigating between script differences in psychophysiological arousal

demonstrated significant script type by stage interactions for three of the seven psychophysiological measures: FBV ($F(9,135)=2.02$, $p=.041$), HR ($F(9,126)=2.08$, $p=.042$), and SCL ($F(9, 135)=3.01$, $p=.030$).

The interaction for FBV in illustrated in Figure 12. Post hoc analyses demonstrated, for FBV, stage three of the neutral script ($F(1,135)=8.17$, $p=.019$), stage three of the accidental injury script ($F(1,135)=16.35$, $p=.002$), and stage three of the aggression script ($F(1,135)=16.98$, $p=.002$) all significantly differed from stage three of the self-mutilation script. In addition, stage four of the neutral script ($F(1,135)=16.99$, $p=.002$), stage four of the accidental injury script ($F(1,135)=26.72$, $p=.000$) and stage four of the aggression script ($F(1,135)=26.10$, $p=.000$) all significantly differed from stage four of the self-mutilation script.

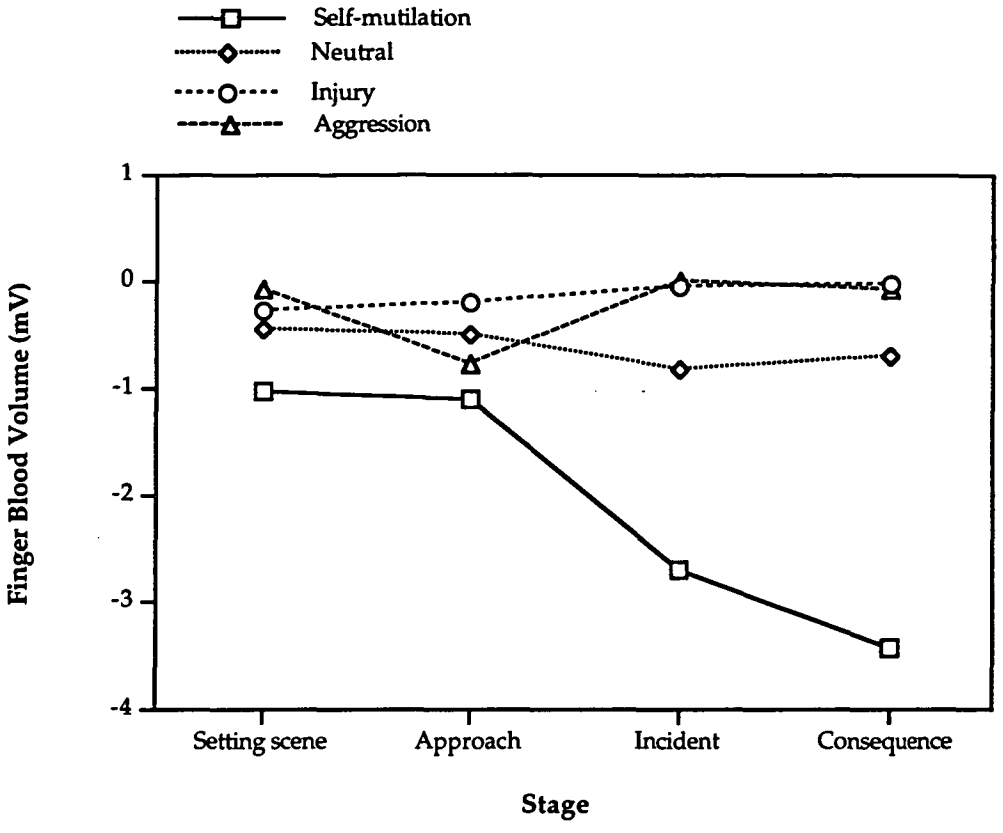

Figure 12: The pattern of psychophysiological arousal for Finger Blood Volume change scores across stages of the self-mutilation script.

The interaction for HR is illustrated in Figure 13. Post hoc analyses demonstrated, for HR, that stage three of the aggression script significantly differed from stage three of the self-mutilation script ($F(1,126)=10.23$, $p=.002$) and stage four of the aggression script significantly differed from stage four of the self-mutilation script ($F(1,126)=8.24$, $p=.006$). In addition, two trends were noted. There was a trend for stage one of the neutral script to be less arousing than stage one of the self-mutilation script ($F(1,126)=3.87$, $p=.055$) and for stage four of the accidental injury script to be more arousing than stage four of the self-mutilation script ($F(1,126)=3.56$, $p=.066$).

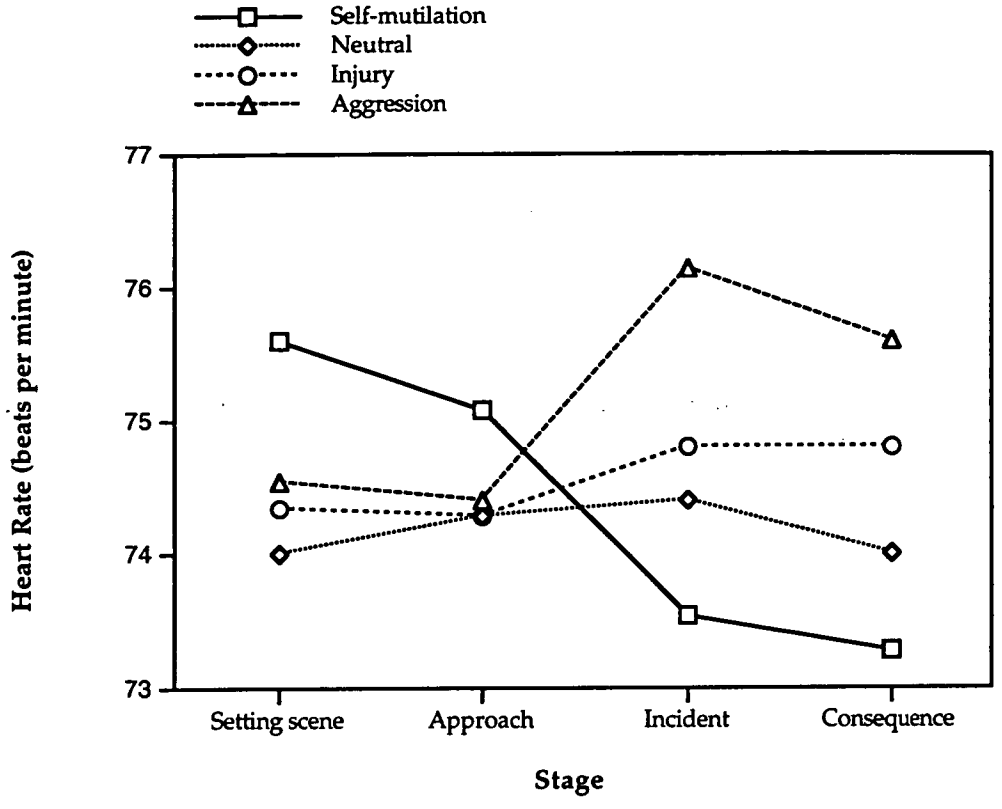

Figure 13: The pattern of psychophysiological arousal for mean Heart Rate scores across stages of the self-mutilation script.

The interaction for SCL is illustrated in Figure 14. Stage two of the self-mutilation script significantly differed from stage two of the neutral script ($F(1,135)=12.05$, $p=.009$) and stage two of the accidental injury script ($F(1,135)=20.00$, $p=.002$). There was a trend for stage two of the self-mutilation script to be more arousing than stage two of the aggression script ($F(1,135)=4.53$, $p=.063$). Conversely, stage three of the aggression script was significantly more arousing than stage three of the self-mutilation script ($F(1,135)=5.40$, $p=.049$). Finally, there was a trend for stage four of the self-mutilation script to engender more of a relaxation response than stage four of the neutral

script (F(1,135)=3.21, p=.097).

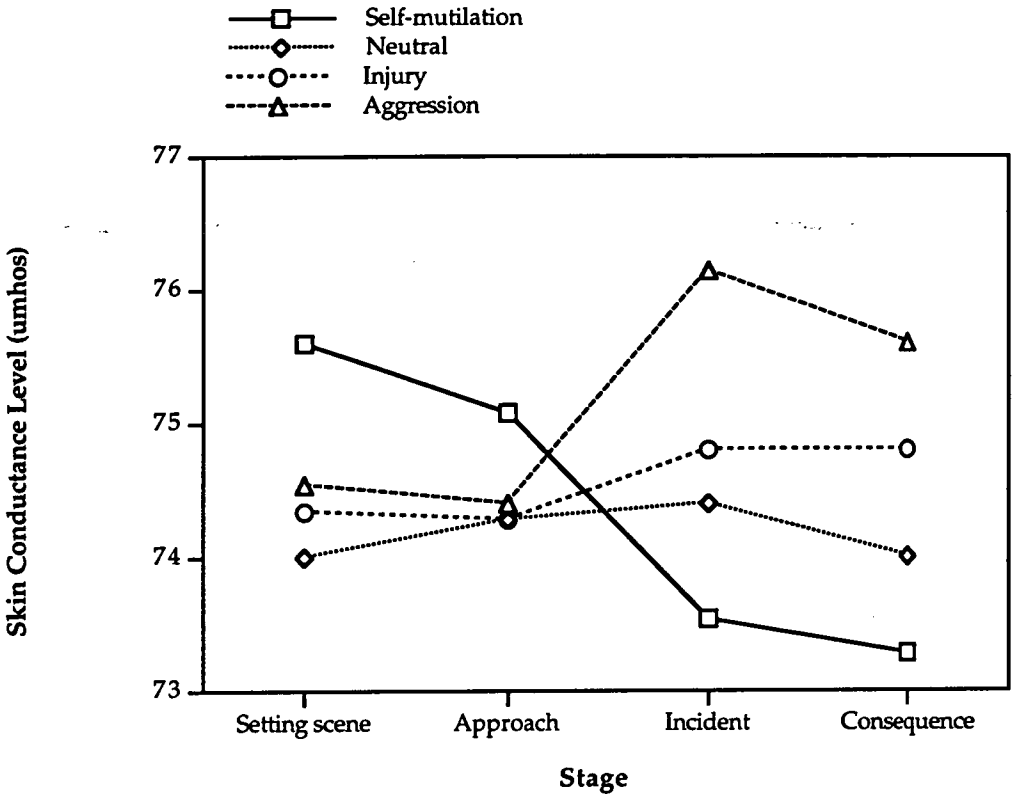

Figure 14: The pattern of psychophysiological arousal for Skin Conductance Level across the stages of the self-mutilation script.

In addition to these interactions, main effects for stage were evident for FPA (F(3,45)=3.63, p=.027) and RESP (F(3,45)=3.01, p=.040).

Comparison of subjective response between scripts

ANOVAs performed on VAS data demonstrated significant differences between scripts for all measures: Relaxed/Tense (F(3,45)=23.51, p=.000); Relaxed/Anxious (F(3,45)=19.42, p=.000); Calm/Angry (F(3,45)=27.30, p=.000);

Unafraid/Afraid (F(3,45)=7.08, p=.000); Happy/Sad (F(3,45)=11.18, p=.000); Normal/Unreal (F(3,45)=23.77, p=.000); and Relieved/Uptight (F(3,45)=12.10, p=.000).

Significant script by stage interactions were evident for all subjective measures: Relaxed/Tense (F(9,135)=5.11), p=.000); Relaxed/Anxious (F(9,135)=6.59, p=.000); Calm/Angry (F9,135)=6.59, p=.000); Unafraid/Afraid (F(9,135)=4.62; p=.000); Happy/Sad (F(9,135)=6.54, p=.000); Normal/Unreal (F(9,135)=3.36, p=.002); Relieved/Uptight (F(9,135)=3.51, p=.001). The post hoc comparisons of the script by stage interactions are presented in Appendix J.

Subjectively, the neutral scripts were experienced more positively than other scripts. No variations across stages were evident. Response to the accidental injury scripts demonstrated an increase in subjective response to the point of injury with a minor decrease thereafter. Response to the aggression scripts evidenced an initial high level of arousal with this response increasing as the conflict developed. Responses remained high. Subjective response to the self-mutilation scripts demonstrated a decrease in arousal with cutting.

Psychophysiological response to self-mutilation imagery

Results demonstrated significant across stage differences for six of the seven psychophysiological arousal measures to the self-mutilation script, supporting the tension reduction model of self-mutilation: FBV (F(3,51)=7.23, p=.000); HR (F(3,48)=5.37, p=.003); CMAX (F(3,48)=3.453, p=.0236); CMIN (F(3,48)=4.40, p=.008); RESP (F(3,51)=3.46, p=.023); and SCL (F(3,51)=4.37,

p=.008). Post hoc analyses demonstrated that psychophysiological arousal remained high across stages one and two of the self-mutilation script. Significant decreases in arousal at stage three were evident for FBV, HR, CMAX and SCL, remaining low throughout stage four. For CMIN and RESP, the significant decrease in arousal occurred at stage four. The measure of FPA, while not significant, displayed the hypothesised pattern of arousal change.

Subjective response to self-mutilation imagery

Analyses demonstrated significant across stage differences for six of the seven subjective measures: Relaxed/Tense ($F(3,51)=7.90$, $p=.000$); Relaxed/Anxious ($F(3,51)=8.06$, $p=.000$); Calm/Angry ($F(3,51)=8.43$, $p=.000$); Happy/Sad ($F(3,51)=20.99$, $p=.000$); Normal/Unreal ($F(3,51)=4.60$, $p=.0064$); and Relieved/Uptight ($F(3,51)=16.24$, $p=.000$). In addition, a trend was evident for the seventh measure, Unafraid/Afraid ($F(3,51)=2.70$, $p=.055$). For six of the seven measures, Relaxed/Tense, Relaxed/Anxious, Calm/Angry, Unafraid/Afraid, Happy/Sad, and Normal/Unreal, a significant subjective relaxation response did not occur until the final stage of imagery. That is, significant differences were noted between the second and fourth stages of imagery but not the second and third stages. For the seventh measure, Normal/Unreal, the significant reduction occurred between the second and third stages of imagery, duplicating the result of the majority of psychophysiological measures.

DISCUSSION

It was predicted that self-mutilators would respond to control imagery in a similar way to control subjects. Although there have been consistent reports that self-mutilators demonstrate a specific pattern of psychological response to acts of self-injury, there is no evidence in the literature to suggest that self-mutilators respond aberrantly to all types of events. Indeed, there were no significant differences between groups in subjective response to control imagery and no consistent difference in psychophysiological response. This is not to say that there were no differences in psychophysiological or subjective response by all subject groups to the different scripts. Consistent differences between the three control scripts and across stages were evident.

While results did not demonstrate overall significant differences of the responses of self-mutilators to the different imagery scripts, significant script by stage interactions were evident for three of the seven psychophysiological measures, FBV, HR and SCL. Main effects for stage of script were evident for FPA and RESP. This lack of convergence or agreement between measures of psychophysiological is not uncommon, except in circumstances of intense emotional arousal (Andreassi, 1989). Convergence was demonstrated for six of the seven measures of psychophysiological arousal to an episode of self-mutilation.

The pattern of subjective response to all scripts by the self-mutilators demonstrated distinctive patterns. Significant script by stage interactions were evident for all VAS measures. Neutral scripts were experienced in a more positive way than other scripts and there was no variation in subjective

response across stages. Accidental injury and aggression imagery resulted in increases in subjective arousal although the patterns of the two significantly differed. Self-mutilation imagery resulted in a decrease in subjective reaction from a negative to a positive response.

Examination of the results provided support for the tension reduction model of self-mutilation. Psychophysiological arousal increased steadily during scene setting and approach behaviour, sharply decreasing for four of the six significant measures at stage three as the decision to cut and actual self-mutilation were described. Arousal remained low throughout the final stage of imagery.

The model postulates that the behaviour represents a drive reduction mechanism which is maintained by a psychophysiological reinforcement process. Results support this notion. It is proposed that the immediate reduction in psychophysiological arousal that self-mutilation provides serves to reinforce the behaviour as an effective coping strategy. Scripts were constructed in such a way that the incident stage typically contained description concerning the initial decision to cut, followed by portrayal of actual self-mutilation. The immediate reduction in psychophysiological arousal at stage three indicates that, as the literature has suggested, some reduction in arousal is experienced at the decision to self-mutilate (Podvoll, 1969; Simpson, 1976). The act of self-mutilation produces further tension reduction and promotes the feelings of relaxation that have been reported as a consequence of the behaviour (Favazza & Conterio, 1989; Simpson, 1975).

The construction of the scripts was based only on information supplied by the subject and response propositions were included where possible.

However, not all subjects were aware of a tension reduction process, although the majority of these subjects demonstrated psychophysiological patterns consistent with such a process. Indeed, many subjects were unaware of, or could not recall any psychophysiological changes when the different events were discussed. From the construction of these scripts, it would be difficult to argue that the psychophysiological response pattern demonstrated to self-mutilation imagery was an artifact caused by an explicit or implicit instruction for tension reduction. In addition, because all scripts were constructed in virtually an identical manner, if a suggestion to reduce tension existed for the self-mutilation scripts, then a suggestion to increase tension would have occurred for the accidental injury and aggression scripts given the nature of the response propositions included in these scripts. While the results demonstrated some increase in tension for the latter two scripts, the changes in response pattern were not as great as for the self-mutilation script.

A number of points should be noted. Individuals who are aware of their psychophysiological responses are more able to alter those responses (Heffernan-Colman, Sharpley & King, 1992). As pointed out, many subjects were exceedingly poor at identifying or recalling bodily states. Although variations in heart rate can be brought about by instruction to attend, the most common response is one of heart rate increase. This occurs even with relaxing imagery (Carroll, Marzillier & Watson, 1980). Indeed, vividness of imagery has been determined to be a better predictor of heart rate increase than decrease (Heffernan-Colman et al., 1992). There is no association between heart rate decrease and imagery ability. As pointed out, although some increase in psychophysiological arousal was evident for the accidental injury

and aggression scripts, the magnitude of arousal change was much greater for the self-mutilation script which recorded an arousal decrease.

Data from the subjective ratings supported the tension reduction hypothesis. There were significant reductions in subjective response for six of the seven VAS measures with a trend towards significance for the Unafraid/Afraid measure. The interesting feature of these responses is the fact that a significant reduction in response did not occur until the final stage of imagery. There appears to be a lag between the psychophysiological and psychological relaxation response to imagery of an act of self-mutilation. There is a strong and immediate reduction of psychophysiological arousal with the act of self-injury. A reduction in negative affect is not reported until after this psychophysiological response has occurred. This result has at least two implications. Firstly, the lag between the psychophysiological and the psychological responses to self-injury may explain why self-mutilators have difficulty in describing and understanding their own behaviour. It seems difficult to reconcile a significant reduction to arousal with continued negative affect demonstrated to occur during self-mutilation imagery. Secondly, the lag also may explain why the behaviour has been resistant to treatment. Prior to this evidence being presented, treatment strategies have focused on the emotional state and not the psychophysiological state. The results of this study suggest that focus on the psychology of self-mutilation to the exclusion of psychophysiology may have led to the reinforcing property of self-mutilative behaviour being ignored.

Methodological issues

This methodology has provided a means of accessing psychophysiological states when direct measurement is impossible because of logistic or ethical reasons. It has provided a useful tool for researchers interested in investigating clinical disorders. Indeed, the skills of the clinician are needed in both the script interviews and the administration of the guided imagery.

To apply this methodology to clinical populations a number of factors needed to be considered. The literature on imagery has clearly and consistently provided evidence on the factors that enhance the use of guided imagery. Firstly, individuals with good imagery ability are more likely to display a psychophysiological arousal pattern that follows imagery script content (Lang, 1979). Secondly, imagery scripts with an emphasis of response elements are superior to scripts containing mainly stimulus elements in eliciting a realistic psychophysiological response pattern (Lang et al., 1980: Hirota & Hirai, 1986). The use of personally relevant material in the script enhances the psychophysiological response of subjects (Pitman et al., 1987, 1990). Finally, the division of an imagery episode into four stages allows for the gradual and realistic build up of the emotional and psychophysiological response (Williams et al., 1989).

However, the first two of these conditions may be difficult to fulfil when subjects are selected on the basis of membership of a clinical group. For example, it would be expected that individuals with a wide range of imagery ability would be present in any clinical group. In addition, it is a well established finding in clinical practice that many individuals lack the ability to distinguish changes in psychophysiological arousal and, therefore,

could not provide the necessary response elements for inclusion in a response-oriented imagery script.

A pilot study was conducted (Brain, Williams, Stops & Haines, 1993) to determine if the methodology would be a viable proposition if applied to individuals with poor imagery ability and who were unable to supply response elements for script inclusion. Two groups of subjects were selected on the basis of their imagery ability. One group had high imagery ability (within the top 25% of imagery scores) and the other low imagery ability (bottom 25%). Both groups were administered a range of guided imagery script types only one half of which contained response elements. It was determined that the handicaps of poor imagery ability and no response information were overcome by the use of personalised scripts presented in stages. Therefore, as long as the subjects from a clinical group could adequately recall an actual episode of the target behaviour, they could participate in a study using this methodology.

However, these findings raised one issue of particular relevance to this study. The design of this experiment did not allow for the inclusion of a script, equivalent to the self-mutilation script, to be administered to the control groups. The results of the pilot study suggested that it would be inappropriate to administer a non-personalised or standard self-mutilation script to those individuals who had never experienced the behaviour, given the facts that each group contained subjects with poor imagery ability and some of the subjects in each group were remarkably poor at identifying arousal levels. Any results obtained from the administration of a standardised script, at the very least, would be confounded by the effects of imagery ability.

While certain clinical conditions would allow for a comparable control script to be administered (e.g., bulimia where a control script for bingeing could be overeating), no such control event could be applied to self-mutilative behaviour. Indeed, a within-subject design could have been applied to this study, using only self-mutilators and administering the other script types as controls. However, control groups were administered the control scripts to determine if self-mutilators were aberrant responders, that is, to determine if they responded in a way dissimilar to the responses of non-mutilators to control scripts. Essentially, they did not.

The lack of comparable script for the self-mutilative episode does not detract from the results of this study. It should be noted that the aim of the study was to determine how self-mutilators reacted to an actual episode of self-mutilative behaviour and not to determine if non-mutilators could simulate the response of self-mutilators to the act.

Conclusions

In conclusion, experimental results have provided support for the tension reduction model of self-mutilation. The rewarding tension reducing qualities of the self-mutilative act reinforce and maintain the behaviour as an effective, although maladaptive, coping strategy. While previous research was derived solely from clinical impressions and self-reports, the inclusion of psychophysiological data has allowed further delineation of the self-mutilative process.

The research findings have important implications for clinical management of self-mutilative behaviour. Few clinical interventions have

been reported and they have, for the most part, been simplistic (e.g., Rosen & Thomas, 1984). It would appear that there is a lag between the psychophysiological and the psychological responses to the self-mutilative act. An understanding of the psychophysiological process and the clearer delineation of the related subjective experiences should facilitate the accurate description of target behaviours and the timing of behavioural and cognitive-behavioural interventions (Williams & Hart, in press).

CHAPTER FIFTEEN
SUMMARY AND CONCLUSIONS

15. CONCLUSIONS

15.1 Summary of results

There is every indication in the literature that males represent a substantial proportion of all self-mutilators (Clendenin & Murphy, 1971; Kaplan & Fik, 1977; Robinson & Duffy, 1989; Weissman, 1975). Of course, this was contrary to earlier understanding of the demographics of self-mutilation (Graff & Mallin, 1967; Grunebaum & Klerman, 1967; Rosenthal et al., 1972). In addition, there is no indication in the literature that the self-mutilative behaviour of prisoners differs from that of the general or psychiatric population. Although manipulative or operant motivations often are ascribed to prisoner self-mutilators (e.g., Jones, 1986), these same motivations have been applied to non-prisoner, self-mutilating samples (Walsh & Rosen, 1988).

Of the sample of self-mutilators employed throughout the course of this study, it was determined that the nature and frequency of their mutilative behaviour did not differ from general/psychiatric self-mutilator populations described in the literature. This sample was determined predominantly to engage in self-cutting, to most commonly use a razor blade on their wrist to achieve the cut, and to have engaged in the behaviour over an extended period of time. Indeed, the vast majority of prisoner self-mutilators adopted the behaviour prior to any incarceration which effectively refutes the notion that self-mutilative behaviour initially was adopted as a response to the restrictive environment of the prison.

Initially, it was necessary to determine that there was a pattern of psychopathology that could distinguish self-mutilators from control groups. There was evidence in the literature that such a pattern existed. In particular, self-mutilators generally were considered to exhibit the characteristics of Borderline Personality Disorder (Favazza & Conterio, 1989; Fruensgaard & Flindt Hansen, 1988; Lion & Conn, 1982; Nelson & Grunebaum, 1971; Schaffer et al., 1982; Simpson, 1976; van Moffaert, 1990).

A distinctive pattern of psychopathology did emerge for this sample. Self-mutilators exhibited a range of psychopathology that set them apart from prisoners with no history of self-mutilation and normal control subjects with no history of self-mutilation or criminal incarceration. Self-mutilators generally were demonstrated to have elevated levels of symptomatology. In particular, levels of hostility differentiated self-mutilators from other groups. The urge to act out feelings of hostility, critical feelings towards others, paranoid feelings of hostility and feelings of guilt characterised the hostility of self-mutilators in comparison to other groups. The direction of this hostility was extrapunitive and this was in accordance with the control groups.

Elevated levels of depression, anxiety and substance abuse also distinguished self-mutilators from other groups. The depression result was unequivocal. All measures of depressive symptomatology were elevated for the self-mutilation group alone. Elevated levels of anxiety also were apparent. While the level of substance abuse was high in both prisoner groups for both alcohol and illicit drug use, the level of substance abuse in the self-mutilation group exceeded that of other groups in terms of clinical significance.

With regard to personality characteristics, a pattern of passive-aggressive, schizoid and avoidant personality styles distinguished self-mutilators from the control groups. The passive-aggressive traits were particularly prominent with eighty-four percent of the sample of self-mutilators having displayed some evidence of a passive-aggressive personality disorder with ninety-four percent of these having marked or prominent symptoms.

There was little evidence of borderline personality disorder among the self-mutilators of this sample. Only one third of the sample displayed traits that were suggestive of this disorder and for none did the disorder reach prominence. It has been suggested that the characteristics of borderline personality disorder fit well with the behaviour of self-mutilators (Walsh & Rosen, 1988). However, characteristics of the passive-aggressive, schizoid and avoidant personalities also are congruent with the understanding of self-mutilation and the people who engage in the behaviour.

Although family disruption has been identified as a possible precursor of self-mutilative behaviour, in this sample the degree of disruption experienced by the self-mutilators was secondary to that experienced by the prisoner controls. Indeed, there was little to suggest that the self-mutilators in this sample had experienced grossly dysfunctional family backgrounds. Although there was some evidence of low family cohesion, low expressiveness and elevated levels of conflict, the degree of conflict was not outside the normal range and these factors did not distinguish self-mutilators from the prisoner control subjects. It is apparent that these factors were more indicative of criminal incarceration than self-mutilation. No other factor in the family environments of self-mutilators distinguished them

from the control groups.

There was some indication that the self-mutilators perceived the severity of physical punishment during chilhood to be greater than that rated by the control groups. However, there were no differences between the groups in terms of whether physical punishment occurred or whether medical assistance was sought because of physical punishment. Statistically, self-mutilators also were no more likely than control groups to have been sexually abused as children. Of course, this is not to say that self-mutilators had not experienced family disturbance, physical and sexual abuse, and, indeed, these factors could be linked to the self-mutilative behaviour of specific subjects. However, these subjects were in the minority and the factors did not influence the self-mutilative behaviour of the group as a whole.

It was the degree and extent of psychopathology that distinguished the self-mutilators from the control groups. However, the nature of that psychopathology was not entirely congruent with reports in the literature. Each sample of self-mutilators is unique with a history of stresses or a range of current factors that influence the behaviour of that group. What links samples of self-mutilators is not the nature of the psychopathology but the self-mutilative behaviour. It is necessary to understand patterns of psychopathology as secondary, with primary importance being given to the self-mutilative behaviour if the behaviour is to be fully understood.

There must be some other aspect of self-mutilative behaviour that explains its occurrence besides the psychopathology experienced by self-mutilators. There is evidence that self-mutilative behaviour may represent a maladaptive but effective coping strategy. It could be surmised that if

these individuals are forced to adopt self-mutilation to cope with problem situations, then they must lack normal coping strategies and that their problem-solving skills are deficient. In addition, it has been suggested that variables such as cognitive distortion cause self-mutilators to view their problem situations in a particular way that leads to feelings of distress in such situations.

However, generally, this was found not to be the case. Although deficits were evident with regard to social support, these deficits also were demonstrated for the prisoner control subjects. It is hardly surprising that a reduction in social support occurs following incarceration. In terms of coping ability, it was the ability to maintain a feeling of positive self-worth, or cognitive resources, that distinguished the self-mutilators from other groups along with increased use of problem avoidance behaviours. With regard to the relationship between the occurrence of self-mutilative behaviour and these coping deficits, it is possible that the deficits occur as a result of self-mutilative behaviour and not as a precursor to the behaviour. In either case, the degree of impairment in coping seems insufficient to warrant the use of self-mutilative behaviour as a coping strategy.

Nor did self-mutilators display substantial deficits in their ability to problem-solve. Although they reported that they had reduced control over problem situations and their problem-solving ability, there were few other deficits in this area. In addition, the inconsistent results with regard to irrational beliefs did not adequately support the notion that the thinking of self-mutilators was sufficiently distorted to make the view they took of problem situations uniformly stress-inducing.

If self-mutilative behaviour is not a symptom of a disease or disorder and if the behaviour is not adopted because of substantial deficits in problem-solving and coping skills, then there must be one or more factors that recommend the behaviour to those who engage in it. A consistent theme throughout the self-mutilation literature has been that this factor is one of tension reduction. To establish why self-mutilative behaviour is adopted as a coping strategy it was necessary to determine the property of self-mutilative behaviour that maintains it and generally recommends it above other coping strategies. Examination was made of both the psychological and the psychophysiological aspects of the act of self-mutilation using guided imagery of actual episodes of self-mutilative behaviour. It was determined that an immediate and substantial reduction of psychophysiological arousal occurred with the act of self-mutilation. This reduction of tension was demonstrated to be sufficiently strong to reinforce the behaviour and maintain its place in a behavioural repertoire. Although there was a subsequent reduction in negative affect, it seems likely that it was the psychophysiological arousal change that was the reinforcer. This finding has implications for the management of self-mutilative behaviour.

15.2 Review of treatment methods

The following sections provide an overview of suggested and implemented treatment programmes. The implications of the results of this study to the management of self-mutilative behaviour then will be discussed.

The majority of treatment outcome studies have focused on the elimination of self-injurious behaviour in intellectually disabled and autistic populations. Success has been reported employing a range of techniques. Aversive techniques such as electric shock (Corte, Wolf & Locke, 1971; Tate, 1972), electric shock and withdrawal of human contact (Tate & Baroff, 1966), electric shock delivered by a parent (Merbaum, 1973) and a fine water mist to the face (Dorsey, Iwata, Ong & McSween,1980) have been demonstrated to reduce the frequency of self-mutilative behaviour in these populations. Punishment procedures such as electric shock were demonstrated to be more efficacious than both differential reinforcement of non-injurious behaviours and withdrawal of social reinforcement for self-injurious behaviour (Corte et al., 1971).

Treatment for Type IV self-mutilation is more straightforward. Control of psychotic symptoms will generally eliminate the self-mutilative behaviour. As such, antipsychotic medication is the treatment of choice for psychotic individuals who engage in severe self-mutilative behaviour (Feldman, 1988a).

Self-mutilative behaviour presents a variety of management problems and is considered difficult to treat (Chowanec et al., 1991; van Moffaert, 1990). Even the identification of injury as self-inflicted may present problems due to the wide variety of methods of self-harm (van Moffaert, 1990) and the fact that many self-mutilators attempt to disguise the nature of their injury (Walsh & Rosen, 1988), particularly those who seek medical rather than psychiatric assistance (van Moffaert, 1990).

Although a number of self-mutilators will never seek treatment for their behaviour (Favazza & Conterio, 1989), the habitual nature of self-

mutilative behaviour means that heavy demands are placed on both medical and mental health services (Favazza & Conterio, 1989; House & Thompson, 1985; Simpson, 1975). One of the first epidemiologically sound studies reported that all subjects had sought medical treatment for their self-mutilative behaviour, 93% at a hospital (Weissman, 1975).

The treatment of the symptom of Type III self-mutilation must be viewed separately from the treatment of the general psychopathology experienced by the individual (Walsh & Rosen, 1988). It has been demonstrated in this series of studies that the general psychopathology of any group of self-mutilators may differ from other groups. As such, the elimination of self-mutilative behaviour requires specific therapeutic intervention that should occur in conjunction with the treatment of other forms of psychopathology.

Psychopharmacological treatment is available for most common psychiatric disorders. However, there is no drug of choice for the treatment of self-mutilative behaviour (Feldman, 1988a; Schwartz et al.,1989). Indeed, limited success has been achieved with a wide range of psychopharmaceuticals (Ballinger, 1971; van Moffaert, 1990). Antidepressants may alleviate dysphoric mood and drugs such as clomipramine may assist in cases where an obsessive-compulsive disorder coexists (Feldman, 1988a). However, no drug has been demonstrated directly to attack the self-mutilative behaviour. As the behaviour occurs when increased anxiety is experienced, it would seem that benzodiazepines may be useful in alleviating anxiety symptoms. However, a paradoxical effect has been reported with the drug producing disinhibition of self-aggression leading to an increase in self-mutilative behaviour (Feldman, 1988a).

Generally, it has been accepted that self-mutilation occurs because those performing the act have few alternative, adaptive means of meeting their needs. As such, a number of behavioural techniques have been employed to teach self-mutilators more adaptive coping strategies.

The majority of reports of treatment outcome are based on single case studies. As a general criticism, most lack appropriate design and outcome measurement. This presents a number of problems. When a variety of treatment interventions are employed in combination, there is no accurate way of determining the efficacy of any one intervention. Discussion of improvement in general terms makes it difficult to gauge the true extent of therapeutic outcome. Lack of long-term follow-up prevents an adequate determination of the efficacy of treatment.

Based on the assumption that the pain from self-mutilative behaviour is reinforcing, one treatment strategy aimed to substitute the pain from a self-inflicted wound with non-injurious muscle pain caused by intensive exercise (Rosen & Thomas, 1984). Self-mutilative behaviour was understood as a learned avoidance behaviour with drive reducing properties. Three case studies were presented where the individuals engaged in self-cutting to avoid/reduce psychological distress. Muscle fatigue and pain were induced by both vigorous exercise such as sit-ups and knee-bends and anaerobic exercise, namely squeezing a hollow rubber ball with the hand. The pain of muscle fatigue competed with the urge to cut and response substitution occurred. It was deemed that the more specific effect of the ball squeezing exercise was sufficient to terminate the urge to cut and, indeed, was more useful than the exercise that involved large body mass.

It would appear that this technique is a useful tool in preventing self-mutilative behaviour when the urge to cut reaches crisis point. It does not provide the self-mutilator with any skills for coping with the precipitating emotional state. It also seems likely that this type of intervention has limited value to the majority of self-mutilators who do not experience pain at the time of injury (e.g. Gardner & Gardner, 1975; Graff & Mallin, 1967; Grunebaum & Klerman, 1967; Rosenthal et al., 1972; Ross & McKay, 1979; Simpson, 1976; Walsh & Rosen, 1988).

Self-mutilators have little tolerance for aversive stimuli and the negative feelings these stimuli evoke (Walsh & Rosen, 1988). One study that directly targetted the negative feelings prior to self-cutting employed stress inoculation training in an attempt to eliminate the self-mutilative behaviour of a 32 year old female (Kaminer & Shahar, 1987). Self-injury involved severe scratching of the left side of the face. A one week baseline allowed the client to be educated in the rationale for stress-inoculation and the nature of stress reactions. During baseline she was required to monitor the situations that evoked an urge to self-mutilate, the duration of these urges and all thoughts and feelings before and during self-scratching. A variety of situations were identified which precipitated an escalation of tension that was only relieved by self-mutilative behaviour.

Baseline was followed by a rehearsal stage where the subject was taught strategies to assist with the negative emotional arousal and dysfunctional cognitions that occurred prior to self-mutilation. A four stage model was used, introducing to the client muscle relaxation procedures, investigating effective coping statements, and organising aversive thoughts and images

relating to self-mutilation into a hierarchy. As a final means of stopping self-mutilative behaviour if the impulse to act became too great, a simple thought stopping procedure was employed where the client was instructed to use the word "stop" and to slap herself on the hand she used to scratch herself (Kaminer & Shahar, 1987).

Self-monitoring as for baseline was continued while rehearsal of adaptive coping skills progressed. In addition, the intensity of the urge to scratch and the amount of time spent scratching were recorded. During the final, application stage, the newly learned and rehearsed coping skills were put into practice in those situations that were identified during baseline as high-risk. Eighteen sessions over a six week period were sufficient to bring about a complete cessation of the scratching behaviour. There was no recurrence at follow-up fifty weeks after discharge and the urge to scratch gradually diminished over this time (Kaminer & Shahar, 1987).

An alternative method of increasing tolerance to aversive stimuli is systematic desensitisation (Walsh & Rosen, 1988). Because self-mutilators use the behaviour to stop the aversive behaviour of others towards themselves, systematic desensitisation can increase the ability of the self-mutilator to cope with interpersonal conflict. The hierarchy of negative experience required for desensitisation may be based on time. That is, most individuals can tolerate aversive situations for short periods of time. Working through the hierarchy would involve being exposed to aversive situations for increasing periods of time. The hierarchy may also be based on the nature of aversive situation. The desensitisation procedure may be conducted in imagination or in vivo. In vivio desensitisation procedures also have

been used with self-injuring intellectually disabled children (e.g., Cunningham & Peltz, 1982).

Learning to tolerate negative stimuli may decrease the urge to self-mutilate. However, new skills need to be developed to counteract the need to self-mutilate. Self-mutilators have been shown to be deficient in social skills. They do not cope with interpersonal relationships well (Feldman, 1988a; Grunebaum & Klerman, 1967; Novotny, 1972; Rosenthal et al., 1972; Simpson, 1975, 1976), they are unable to verbally communicate their feelings to others (Raine, 1982; Simpson, 1976) and they expect rejection and abandonment (Novotny, 1972). Self-mutilative behaviour maybe used as a tool for establishing and maintaining relationships (Walsh & Rosen, 1988). It has been suggested that self-mutilators develop the social skills necessary to achieve and retain normal relationships. These skills should include the ability to verbally communicate feelings, a tension reduction response other than self-mutilation, the enhancement of power within relationships, the ability to negotiate with others for change within relationships, the ability to disperse guilt feelings and the skills necessary for maximising rewards within a relationship (Walsh & Rosen, 1988).

The shaping of new social skills should be graded. The component parts of new social responses should be dealt with separately, rehearsed, reinforced and applied in natural settings (Walsh & Rosen, 1988). The therapist can assist in this process by demonstrating new skills, allowing a safe environment for rehearsal of these newly acquired skills and by providing social reinforcement for success. Self-efficacy develops from successful performance of graded social skills.

Behavioural contracting has been suggested to be a useful tool for those self-mutilators who do not react positively to social reinforcement for behaviour incompatible to self-mutilation (Walsh & Rosen, 1988). Contracts may be negotiated with therapist, client and significant others so that the restrictions and goals named in the contract are acceptable to all involved. Behaviour contracts are generally time-limited and the rewards for compliance are chosen to be powerful enough to affect self-mutilative behaviour. The target of the contract is not necessarily self-mutilative behaviour. Performance of adaptive coping skills may be targetted in an attempt to reinforce incompatible behaviours.

Much of the literature relating to treatment outcome is based on the application of a variety of therapeutic strategies. For example, a 19 year old female with a history of self-cutting and skin burning was administered a multimodal treatment programme (Roback et al., 1972). Self-mutilation appeared to be contingent on feelings of anger for which she had no adaptive means of coping. Interventions included drug therapy, education in accurately labelling emotions, modelling of appropriate anger responses as well as affectionate responses, role playing of the modelled situations, assertiveness training in a modified form, psychodrama to release emotional stress, group psychotherapy and a punishment regime where privileges were withheld following an act of self-mutilation. The aim of therapy was to increase assertive behaviour and decrease aggressive responses. Examination of the progress of the client demonstrated that modelling, role-playing and assertiveness training were the most important elements of the treatment programmes, allowing the client to adequately cope with anger when

distressed.

A female university student with a long history of self-cutting which had previously been treated with ECT and inpatient care, was placed in a multimodal treatment programme to combat the development of extensive skin-burning behaviour (Cox & Klinge, 1976). Treatment procedures included relaxation training and thought stopping to deal with the urge to self-burn, covert sensitisation using imaginally induced nausea to produce a conditioned aversive response to self-burning, assertiveness training with modelling of appropriate anger responses and covert control of negative self-evaluative responses. The aim of the treatment was to remove any positive reinforcement for the self-burning while associating the behaviour with aversive properties, developing behaviours that were incompatible with self-mutilation and improving social skills. Certainly there was a decrease in self-burning following the introduction of treatment. However, she initiated a number of other maladaptive behaviours that elicited considerable sympathy from staff members. In addition, she verbally manipulated staff by praising each staff member individually for this help in the treatment programme. To break this control, all sympathetic concern for non-burning maladaptive behaviours was eliminated. Once these behaviours had ceased, social reinforcement for adaptive behaviours was instituted. This is a clear example of the inherent dangers in the elimination of reinforcement mentioned previously.

A 20 year old male with severe compulsive eye-poking, tongue and lip biting was treated with a variety of strategies (Cautela & Baron, 1973). A combination of interventions were employed without consideration to the

evaluation of the efficacy of any specific intervention because of the severity of self-mutilation. Visual impairment was permanent and the facial features were disfigured. Techniques employed included relaxation and thought stopping. They were used to weaken the association between the precipitants of the behaviour and the act of self-mutilation. The client was taught to relax when tension began to escalate and to use thought stopping techniques when he became aware of the urge to self-mutilate. Covert sensitisation was used to decrease the frequency of the behaviour by pairing the self-mutilative act with an imagined aversive consequence. In addition, covert reinforcement was used to strengthen those behaviours that were incompatible with the self-mutilative response. Contracts were made to ensure treatment compliance. Application of these strategies in combination were sufficient to bring the self-mutilative behaivour of this client under control.

In summary, the majority of treatment strategies have focused on coping skill deficits and have attempted to provide alternative options for coping. The results of this study offer an alternative approach to the management of self-mutilative behaviour.

15.3 Implications for management

It has been established that the reduction in psychophysiological arousal immediately after an act of self-mutilation reinforces the mutilative behaviour and maintains it as an effective coping strategy. It is not primarily the reduction of negative affect that reinforces the behaviour but the

psychophysiological tension reduction. In addition, it would appear that the behaviour is selected as a coping strategy, not because alternative coping strategies are not available, but because no other strategy works as quickly or as well as self-mutilative behaviour.

This has certain implications for the management of the behaviour. It would be difficult to recommend that self-mutilating individuals be taught alternative coping and problem-solving skills when these skills already are available to the individual. The actual process of an act of self-mutilation must be addressed to bring the behaviour under control.

There are two alternative approaches. Firstly, to extinguish the behaviour it would be necessary to prevent the reinforcer from occurring. The only way to do this would be to prevent the behaviour from occurring. Stress management techniques targetting the initial increase of tension would have to be implemented. It would be necessary to prevent the escalation of negative affect that precipitates an act of self-mutilation. However, it should be noted that as self-mutilative behaviour becomes habitual, self-mutilators have been reported to engage in the behaviour when faced with increasingly minor problems (Grunebaum & Klerman, 1967). Therefore, while stress management techniques undoubtedly would be important, it would be impossible to prevent the relatively low level of arousal that precipitates an act of self-mutilation in habitual self-mutilators.

There is another alternative. When the behaviour to be extinguished is associated some pleasant consequence, that behaviour is best understood as an approach behaviour. This may be difficult to accept as self-mutilative behaviour commonly has been understood to be an avoidance behaviour.

If it is accepted that self-mutilative behaviour, when associated with a pleasant outcome, is an approach behaviour, then the covert treatment of choice would be covert sensitisation, perhaps used in combination with covert extinction. The use of covert sensitisation may seem like double punishment, that is, that the therapist would be punishing the self-mutilator for punishing his or herself. However, this view would be based on the premise that the self-mutilator interprets the behaviour or engages in the behaviour as a means of punishment. It is entirely possible that the behaviour is performed to gain a reward, that of tension reduction. Indeed, covert procedures for the management of self-mutilative behaviour have been recommended (Cautela & Baron, 1973), and covert sensitisation has been included in a treatment package developed to address self-burning in a single case (Cox & Klinge, 1976). Unfortunately, the design of the study prevented the evaluation of efficacy of the individual components of the treatment programme.

It is not suggested that all cases of self-mutilative behaviour could adequately be dealt with using this type of treatment strategy. It would be necessary to determine that a substantial tension reduction pattern was occurring with the act of self-mutilation. For this purpose, the guided imagery methodology employed in this study could be used as a diagnostic tool. Indeed, the specific delineation of the nature of the individual's arousal pattern allows for the tailoring of specific stress management procedures to meet the needs of that individual.

15.3 Directions for future research

It seems evident that it is important to understand the process of an act of self-mutilation. The majority of the research to date has focused on the factors that are precursors to self-mutilative behaviour and encourage the adoption of the behaviour as well as the psychopathology that occurs concomitantly to the behaviour. The aim of much of this research has been to identify at-risk individuals and to determine target behaviours to assist in the management of self-mutilation. While these have been worthy pursuits, it is apparent that these approaches have limitations. Self-mutilative behaviour is a significant clinical problem and there are limited means of controlling the behaviour.

The focus must now be directed to the components of an act of self-mutilation. It has been determined that a substantial reduction in psychophysiological arousal occurs immediately following an act of self-mutilation. The strength of the association between the act of self-mutilation and the relaxation response needs to be investigated. For example, it has yet to be determined if the association still exists when the individual cognitively rehearses the act of self-mutilation but does not carry it out. If this is the case, then the strength of the reinforcing property of tension reduction is substantially increased. A self-mutilator may cognitively rehearse the behaviour many times over the course of a single day. If tension reduction occurs with this rehearsal, then the behaviour will prove to be exceedingly difficult to extinguish by the means presently employed. Therefore, it is important that alternative methods of treatment are considered.

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APPENDIX A

Consent forms

CONSENT FORM - SELF-MUTILATORS

A study is being conducted by Dr George Wilson, Dr Chris Williams and Miss Janet Haines of the University of Tasmania in an attempt to understand why people deliberately harm themselves with the aim of developing a method of treatment. Participants in this study will be required to answer questions about family background, the way you think, feel and deal with problem situations, and about times you have deliberately harmed yourself. In addition, measurements of heart rate, breathing and blood pressure will be taken while you are asked to imagine a series of situations that you have selected. In order to measure your heart rate, etc. a number of electrodes will be attached to your body and left hand. Placement of these electrodes will produce minimal discomfort and all electrodes have been disinfected after use so that there is minimal risk of infection. Participation in this study is voluntary and you may withdraw from the study at any time by stating a wish to do so. If you have any questions or concerns about the study you may discuss them with Miss Janet Haines or with Dr Wilfred Lopes, Dr Gerry Von Bamburger or Dr Estelle McCarthy from the prison hospital.

I have read the information about and any questions I have asked have been answered to my satisfaction. I agree to participate in this investigation and understand that I may withdraw at any time. I agree that research data gathered for the study may be published provided that I cannot be identified as a subject.

Signature of subject_____ Date_____

I have explained this project and the implications of participation in it to this volunteer and I believe that the consent is informed and that he understands the implications of participation.

Signature of investigator_____ Date_____

CONSENT FORM - PRISONER CONTROLS

A study is being conducted by Dr George Wilson, Dr Chris Williams and Miss Janet Haines of the University of Tasmania in an attempt to understand why people deliberately harm themselves with the aim of developing a method of treatment. Participants in this study will be required to answer questions about family background, the way you think, feel and deal with problem situations. In addition, measurements of heart rate, breathing and blood pressure will be taken while you are asked to imagine a series of situations that you have selected. In order to measure your heart rate, etc. a number of electrodes will be attached to your body and left hand. Placement of these electrodes will produce minimal discomfort and all electrodes have been disinfected after use so that there is minimal risk of infection. Participation in this study is voluntary and you may withdraw from the study at any time by stating a wish to do so. If you have any questions or concerns about the study you may discuss them with Miss Janet Haines or with Dr Wilfred Lopes, Dr Gerry Von Bamburger or Dr Estelle McCarthy from the prison hospital.

I have read the information about and any questions I have asked have been answered to my satisfaction. I agree to participate in this investigation and understand that I may withdraw at any time. I agree that research data gathered for the study may be published provided that I cannot be identified as a subject.

Signature of subject_____ Date_____

I have explained this project and the implications of participation in it to this volunteer and I believe that the consent is informed and that he understands the implications of participation.

Signature of investigator_____ Date _____

CONSENT FORM - NORMAL CONTROLS

A study is being conducted by Dr George Wilson, Dr Chris Williams and Miss Janet Haines of the University of Tasmania in an attempt to understand why people deliberately harm themselves with the aim of developing a method of treatment. Participants in this study will be required to answer questions about family background, the way you think, feel and deal with problem situations. In addition, measurements of heart rate, breathing and blood pressure will be taken while you are asked to imagine a series of situations that you have selected. In order to measure your heart rate, etc. a number of electrodes will be attached to your body and left hand. Placement of these electrodes will produce minimal discomfort and all electrodes have been disinfected after use so that there is minimal risk of infection. Participation in this study is voluntary and you may withdraw from the study at any time by stating a wish to do so. If you have any questions or concerns about the study you may discuss them with Miss Janet Haines.

I have read the information about and any questions I have asked have been answered to my satisfaction. I agree to participate in this investigation and understand that I may withdraw at any time. I agree that research data gathered for the study may be published provided that I cannot be identified as a subject.

Signature of subject_____ Date_____

I have explained this project and the implications of participation in it to this volunteer and I believe that the consent is informed and that he understands the implications of participation.

Signature of investigator_____ Date_____

APPENDIX B

Interview and scales used in Study One

Subject type: smp/nmp/nc Prisoner type: max/med/min/remand/hosp

A. Demographic information

Name: _____

Age: _____

Marital status:
- ☐ Single
- ☐ Married/de facto
- ☐ Separated/divorced
- ☐ Widowed

Highest level of education received:
- ☐ Did not complete highschool
- ☐ Completed highschool
- ☐ Tertiary qualification

Can you read and write? YES/NO

B. Criminal history

Nature of present offence: _____

_____

Duration of present sentence: _____

_____

Duration of present sentence served: _____

Details of past offences: _____

_____

Details of past sentence(s): _____

_____

C. Symptomatology

SCL-90-R

I will read a list of problems people sometimes have. I want to know how much that problem has distressed or bothered you during the past 7 days including today. The problem could have distressed or bothered you not at all, a little bit, moderately, quite a bit, or extremely.

SCL—90—R®

SIDE 1

INSTRUCTIONS:

Below is a list of problems people sometimes have. Please read each one carefully, and circle the number to the right that best describes **HOW MUCH THAT PROBLEM HAS DISTRESSED OR BOTHERED YOU DURING THE PAST 7 DAYS INCLUDING TODAY.** Circle only one number for each problem and do not skip any items. If you change your mind, erase your first mark carefully. Read the example below before beginning, and if you have any questions please ask about them.

SEX

MALE ○

FEMALE ○

NAME: _____

LOCATION: _____

EDUCATION: _____

MARITAL STATUS: MAR.__ SEP.__ DIV.__ WID.__ SING.__

DATE			ID. NUMBER	AGE
MO	DAY	YEAR		

VISIT NUMBER: _____

EXAMPLE HOW MUCH WERE YOU DISTRESSED BY:	NOT AT ALL	A LITTLE BIT	MODERATELY	QUITE A BIT	EXTREMELY
1. Bodyaches	0	1	2	(3)	4

HOW MUCH WERE YOU DISTRESSED BY:		NOT AT ALL	A LITTLE BIT	MODERATELY	QUITE A BIT	EXTREMELY
1. Headaches	1	0	1	2	3	4
2. Nervousness or shakiness inside	2	0	1	2	3	4
3. Repeated unpleasant thoughts that won't leave your mind	3	0	1	2	3	4
4. Faintness or dizziness	4	0	1	2	3	4
5. Loss of sexual interest or pleasure	5	0	1	2	3	4
6. Feeling critical of others	6	0	1	2	3	4
7. The idea that someone else can control your thoughts	7	0	1	2	3	4
8. Feeling others are to blame for most of your troubles	8	0	1	2	3	4
9. Trouble remembering things	9	0	1	2	3	4
10. Worried about sloppiness or carelessness	10	0	1	2	3	4
11. Feeling easily annoyed or irritated	11	0	1	2	3	4
12. Pains in heart or chest	12	0	1	2	3	4
13. Feeling afraid in open spaces or on the streets	13	0	1	2	3	4
14. Feeling low in energy or slowed down	14	0	1	2	3	4
15. Thoughts of ending your life	15	0	1	2	3	4
16. Hearing voices that other people do not hear	16	0	1	2	3	4
17. Trembling	17	0	1	2	3	4
18. Feeling that most people cannot be trusted	18	0	1	2	3	4
19. Poor appetite	19	0	1	2	3	4
20. Crying easily	20	0	1	2	3	4
21. Feeling shy or uneasy with the opposite sex	21	0	1	2	3	4
22. Feelings of being trapped or caught	22	0	1	2	3	4
23. Suddenly scared for no reason	23	0	1	2	3	4
24. Temper outbursts that you could not control	24	0	1	2	3	4
25. Feeling afraid to go out of your house alone	25	0	1	2	3	4
26. Blaming yourself for things	26	0	1	2	3	4
27. Pains in lower back	27	0	1	2	3	4
28. Feeling blocked in getting things done	28	0	1	2	3	4
29. Feeling lonely	29	0	1	2	3	4
30. Feeling blue	30	0	1	2	3	4
31. Worrying too much about things	31	0	1	2	3	4
32. Feeling no interest in things	32	0	1	2	3	4
33. Feeling fearful	33	0	1	2	3	4
34. Your feelings being easily hurt	34	0	1	2	3	4
35. Other people being aware of your private thoughts	35	0	1	2	3	4

Please continue on the following page ▶

HOW MUCH WERE YOU DISTRESSED BY:		NOT AT ALL	A LITTLE BIT	MODERATELY	QUITE A BIT	EXTREMELY
36. Feeling others do not understand you or are unsympathetic	36	0	1	2	3	4
37. Feeling that people are unfriendly or dislike you	37	0	1	2	3	4
38. Having to do things very slowly to insure correctness	38	0	1	2	3	4
39. Heart pounding or racing	39	0	1	2	3	4
40. Nausea or upset stomach	40	0	1	2	3	4
41. Feeling inferior to others	41	0	1	2	3	4
42. Soreness of your muscles	42	0	1	2	3	4
43. Feeling that you are watched or talked about by others	43	0	1	2	3	4
44. Trouble falling asleep	44	0	1	2	3	4
45. Having to check and double-check what you do	45	0	1	2	3	4
46. Difficulty making decisions	46	0	1	2	3	4
47. Feeling afraid to travel on buses, subways, or trains	47	0	1	2	3	4
48. Trouble getting your breath	48	0	1	2	3	4
49. Hot or cold spells	49	0	1	2	3	4
50. Having to avoid certain things, places, or activities because they frighten you	50	0	1	2	3	4
51. Your mind going blank	51	0	1	2	3	4
52. Numbness or tingling in parts of your body	52	0	1	2	3	4
53. A lump in your throat	53	0	1	2	3	4
54. Feeling hopeless about the future	54	0	1	2	3	4
55. Trouble concentrating	55	0	1	2	3	4
56. Feeling weak in parts of your body	56	0	1	2	3	4
57. Feeling tense or keyed up	57	0	1	2	3	4
58. Heavy feelings in your arms or legs	58	0	1	2	3	4
59. Thoughts of death or dying	59	0	1	2	3	4
60. Overeating	60	0	1	2	3	4
61. Feeling uneasy when people are watching or talking about you	61	0	1	2	3	4
62. Having thoughts that are not your own	62	0	1	2	3	4
63. Having urges to beat, injure, or harm someone	63	0	1	2	3	4
64. Awakening in the early morning	64	0	1	2	3	4
65. Having to repeat the same actions such as touching, counting, or washing	65	0	1	2	3	4
66. Sleep that is restless or disturbed	66	0	1	2	3	4
67. Having urges to break or smash things	67	0	1	2	3	4
68. Having ideas or beliefs that others do not share	68	0	1	2	3	4
69. Feeling very self-conscious with others	69	0	1	2	3	4
70. Feeling uneasy in crowds, such as shopping or at a movie	70	0	1	2	3	4
71. Feeling everything is an effort	71	0	1	2	3	4
72. Spells of terror or panic	72	0	1	2	3	4
73. Feeling uncomfortable about eating or drinking in public	73	0	1	2	3	4
74. Getting into frequent arguments	74	0	1	2	3	4
75. Feeling nervous when you are left alone	75	0	1	2	3	4
76. Others not giving you proper credit for your achievements	76	0	1	2	3	4
77. Feeling lonely even when you are with people	77	0	1	2	3	4
78. Feeling so restless you couldn't sit still	78	0	1	2	3	4
79. Feelings of worthlessness	79	0	1	2	3	4
80. The feeling that something bad is going to happen to you	80	0	1	2	3	4
81. Shouting or throwing things	81	0	1	2	3	4
82. Feeling afraid you will faint in public	82	0	1	2	3	4
83. Feeling that people will take advantage of you if you let them	83	0	1	2	3	4
84. Having thoughts about sex that bother you a lot	84	0	1	2	3	4
85. The idea that you should be punished for your sins	85	0	1	2	3	4
86. Thoughts and images of a frightening nature	86	0	1	2	3	4
87. The idea that something serious is wrong with your body	87	0	1	2	3	4
88. Never feeling close to another person	88	0	1	2	3	4
89. Feelings of guilt	89	0	1	2	3	4
90. The idea that something is wrong with your mind	90	0	1	2	3	4

D. Personality

MCMI

I am going to read a list of statements that people use to describe themselves. They are statements that help you in describing your feelings and attitudes. Try to be as honest and serious as you can when making your answers. Do not be concerned that a few of the statements will seem unusual to you; they are included to describe people with many types of problems. I want you to tell me if each statement is true or false. If you do not understand any of the statements I will explain them to you.

1. I always follow my own ideas rather than do what others expect of me.
2. All my life I have worn myself out trying to please other people.
3. Talking to other people has always been difficult and painful for me.
4. I believe in being strong willed and determined in everything I do.
5. In the last few weeks I begin to cry even when the slightest of things goes wrong.
6. I love to have many different social activities and like to go from one to another.
7. I am a very weak person who has to lean on others for almost everything.
8. I always feel I am not wanted in a group.
9. I often criticize people strongly if they annoy me.
10. I am content to be a follower of others.
11. I enjoy doing so many different things that I can't make up my mind what to be first.
12. I am very changeable in my likes and dislikes.
13. I have little interest in making friends.
14. I think I am a very sociable and out-going person.
15. I know I'm a superior person, so I don't care what people think.
16. People have never given me enough recognition for that things I've done.
17. I have a drinking problem that I've tried unsuccessfully to end.
18. Lately, I get butterflies in my stomach and break out in cold sweats.
19. I have always wanted to stay in the background during social activities.
20. I will often do things for no reason other than they might be fun.
21. I keep my room well organized with everything in the correct place at all times.
22. I am the sort of person who changes his opinions and attitudes from day to day.
23. There have been times when people have become annoyed with me because I talked too much or too fast for them.
24. I'll make a sharp and critical remark to someone if they deserve it.
25. I find myself quick to agree with the opinions of others.
26. I tend to burst out in tears or in anger for unknown reasons.
27. Lately, I've begun to feel lonely and empty.
28. I have a talent to be dramatic.
29. I have a hard time keeping my balance when walking.
30. I enjoy intense competition.
31. When I run into a crisis, I quickly look for someone to help me.
32. I prefer to be with people who are religious.
33. I feel weak and tired much of the time.
34. Something exciting always comes along to pull me out of a sad mood.
35. My drig habit has often gotten me into a good deal of trouble.
36. Lately, I find myself crying without any reason.
37. I have always avoided getting involved with people socially.
38. Under no circumstances do I ever let myself be tricked by people who say they need help.
39. One sure way to make a peaceful world is by improving people's morals.
40. I am a very well read person.
41. I find it hard to sympathize with people who are always unsure about things.

42. I am a very agreeable and submissive person.
43. My own "bad temper" has been a big cause of my unhappiness.
44. I have always felt a pain somewhere in my body.
45. I get very depressed now by even minor things.
46. Sometimes my mind goes so fast I can hardly keep up with it.
47. I'm so quiet and withdrawn, most people don't even know I exist.
48. I like to flirt with members of the opposite sex.
49. I am a quiet and fearful person.
50. I'm a very erratic person, changing my mind and feelings all the time.
51. I feel very tense when I think of the day's happenings.
52. Drinking alcohol on my part has never caused any real problems in my work.
53. Lately, my strength seems to be draining out of me, even in the morning.
54. I've begun to feel like a failure in recent weeks.
55. I hate to talk, even to people I know.
56. I have always had a terrible fear that I will lose the love of people I need very much.
57. There have been times when I had so much energy that I didn't need any sleep for days.
58. Lately, I have begun to feel like smashing things.
59. I have given serious thought recently to doing away with myself.
60. I am always looking to make new friends and meet new people.
61. I keep very close track of my money so I am prepared if a need comes up.
62. I was on the front cover of several magazines last year.
63. Few people like me.
64. If someone criticized me for making a mistake, I would quickly point out some of that person's mistakes.
65. I often have difficulty making decisions without seeking help from others.
66. I often let my angry feelings out and then feel terribly guilty about it.
67. Lately, I feel jumpy and under terrible strain, but I don't know why.
68. I very often lose my ability to feel any sensations in parts of my body.
69. When I am home alone I telephone one friend after another just to talk.
70. Talking so-called illegal drugs may be unwise, but in the past I found I needed them.
71. Lately, I feel tired all the time.
72. Lately, I can't seem to sleep, and wake up just as tired as when I went to bed.
73. I have a tight feeling in the pit of my stomach every few days or so.
74. I used to enjoy performing for family friends when I was younger.
75. We should respect earlier generations and not thinkg we know better then they.
76. I feel terribly depressed and sad much of the time now.
77. I am the sort of person that others take advantage of.
78. I always try hard to please others, even when I dislike them.
79. Serious thoughts of suicide have occurred to me for many years.
80. I quickly figure out how people are trying to cuase my trouble.
81. I have periods of so much energy that I can't sit still at all.
82. I can't understand it, but I seem to enjoy hurting persons I love.
83. A long time ago, I decided it's best to have little to do with people.
84. I am ready to fight to the death before I'd let anybody take away my self-determination.
85. Since I was a child, I have always had to watch out for people who were trying to cheat me.
86. When things get boring, I like to stir up some excitement.
87. I have an alcoholic problem that has made difficutlies for me and my family.
88. If a person wants something done that calls for real patience, they should ask me.
89. I am probably the most creative thinker among the people I know.
90. I have not seen a car in the last ten years.
91. I feel I am not a likeable person.
92. Punishment never stopped me from doing what I wanted.

93. There are many times, when for no reason, I feel very cheerful and full of excitement.
94. It would be good for me to be married to a person who is more grownup and less immature than I am.
95. I very often say things quickly that I regret having said.
96. In recent week sI feel worn out for no special reason.
97. I feel very guilty lately because I am not able to do things right anymore.
98. Ideas keep turning over and over in my mind and they won't go away.
99. I've become quite discouraged and sad about life recently.
100. Many people have been spying into my private life for years.
101. I have always gone for long periods when I hardly talk to anyone.
102. I hate or fear most people.
103. I speak out my opinions about things no matter what others may think.
104. Sometimes I do things so fast that others get annoyed with me.
105. My habit of abusing drugs has caused me to miss work in the past.
106. I am always willing to give in to others to avoid disagreements.
107. I am often cross and grouchy.
108. I just don't have the strength lately to fight back.
109. Lately, I have to think things over and over again for no good reason.
110. Looking back on my life, I know I have made others suffer as much as I have suffered.
111. I use my charm to get the attention of other people.
112. Though my body pains and problems are real, nobody seems to understand them.
113. When things scared me as a child, I almost always ran to my mother.
114. Lately, I've been sweating a great deal and feel very tense.
115. Sometimes I feel like I must do something tohurt myself or someone else.
116. I keep so busy doing so many things that people can't figure out what I'll be doing next.
117. I've become very jumpy in the last few weeks.
118. I keep having strange thoughts that I wish I could get rid of.
119. I have a great deal of trouble trying to control an impulse to drink to excess.
120. Most people think that I'm a worthless nothing.
121. I very often feel a lump in my throat.
122. I have succeeded over the years in drinking a minimum of alcohol.
123. I have always "tested" people to find out how much they can be trusted.
124. Even when I'm awake, I don't seem to notice people who are near me.
125. It is very easy for me to make many friends.
126. I always make sure that my work is well planned and organized.
127. I very often hear things so well that it bothers me.
128. If it weren't for the medicines I'm taking, I'd be running around with too much energy in me.
129. I don't blame anyone who takes advantage of some one who allows it.
130. I amy very easily led by people.
131. I've many ideas that are ahead of the times.
132. Lately, I've been feeling sad and blue and I can't seem to snap out of it.
133. I think it is always best to seek help in what I do.
134. All my life I have felt guilty for letting down so many people.
135. I have always known what my mind teels me and I have never listened to what others say.
136. In the last fewyears, I have felt so guilty that I may do something terrible to myself.
137. I never sit on the sidelinbs when I'm at a party.
138. People tell me that I'm a very proper and moral person.
139. There have been times recently when I ran around doing so many thing at once that I got worn out.
140. I have a problem using so-called illegal drugs that has led to family arguments.
141. I am very ill-at-ease with members of the opposite sex.
142. I have a way of speaking driectly that often makes people angry.

143. I don't mind that people are not interested in me.
144. Frankly, I lie quite often to get out of trouble.
145. People can easily change my ideas, even if I thought my mind was made up.
146. Others have tried to do me in, but I have the will power to overcome them.
147. I often say annoying things, without thinking, that hurt someone's feelings.
148. I often make people angry by bossing them.
149. I have great respect for those in authority over me.
150. I have almost no close ties with other people.
151. People have said in the past that I became too interested and too excited about too many things.
152. I have flown across the Atlantic thirty times in the last year.
153. I believe in the saying, "early to bed and early to rise..."
154. I attempt to be the life of the party.
155. I could nevery be friendly with people who do immoral things.
156. My parents always disagreed with each other.
157. On occasion I have had as many as ten or more drinks without becoming drunk.
158. In social groups I am almost always very self-conscious and tense.
159. I think highly of rules because they are a good guide to follow.
160. Every since I was a child, I have been losing touch with the real world.
161. I rarely feel anything strongly.
162. I have a strong need to depend on others.
163. Ideas very often run through my mind much faster than I can speak them.
164. Sneaky people ofyten try to get the cred for things I have done or thought of.
165. I would really enjoy being in show business.
166. I have the ability to be successful in almost anything I do.
167. Lately, I have gone all to pieces.
168. I have always looked for help in everything I do.
169. There has never been any hair on either my head or my body.
170. When I am with others I like to be the center of attention.
171. I always feel like an outsider in social groups.
172. I'm the kind of person who can walk up to anyone and tell him or her off.
173. I prefer to be with people who will be protective of me.
174. I've had many period in my life when I was so cheerful and used up so much energy that I feel into a low mood.
175. I have had difficulties in the past stopping myself from over-using drugs or alcohol.

MCMI

MILLON CLINICAL MULTIAXIAL INVENTORY
By Theodore Millon

MCMI Hand-Scored Answer Sheet

Name or Identification Number

Testing Date | Race | Age | Sex

Raw Scores:

1		A	
2		H	
3		N	
4		D	
5		B	
6		T	
7		SS	
8		CC	
Sum 1-8		PP	
S		V	
C			
P			

This answer sheet is for hand scoring only. Do not send to National Computer Systems for scoring.

1 T F	31 T F	61 T F	91 T F	121 T F	151 T F
2 T F	32 T F	62 T F	92 T F	122 T F	152 T F
3 T F	33 T F	63 T F	93 T F	123 T F	153 T F
4 T F	34 T F	64 T F	94 T F	124 T F	154 T F
5 T F	35 T F	65 T F	95 T F	125 T F	155 T F
6 T F	36 T F	66 T F	96 T F	126 T F	156 T F
7 T F	37 T F	67 T F	97 T F	127 T F	157 T F
8 T F	38 T F	68 T F	98 T F	128 T F	158 T F
9 T F	39 T F	69 T F	99 T F	129 T F	159 T F
10 T F	40 T F	70 T F	100 T F	130 T F	160 T F
11 T F	41 T F	71 T F	101 T F	131 T F	161 T F
12 T F	42 T F	72 T F	102 T F	132 T F	162 T F
13 T F	43 T F	73 T F	103 T F	133 T F	163 T F
14 T F	44 T F	74 T F	104 T F	134 T F	164 T F
15 T F	45 T F	75 T F	105 T F	135 T F	165 T F
16 T F	46 T F	76 T F	106 T F	136 T F	166 T F
17 T F	47 T F	77 T F	107 T F	137 T F	167 T F
18 T F	48 T F	78 T F	108 T F	138 T F	168 T F
19 T F	49 T F	79 T F	109 T F	139 T F	169 T F
20 T F	50 T F	80 T F	110 T F	140 T F	170 T F
21 T F	51 T F	81 T F	111 T F	141 T F	171 T F
22 T F	52 T F	82 T F	112 T F	142 T F	172 T F
23 T F	53 T F	83 T F	113 T F	143 T F	173 T F
24 T F	54 T F	84 T F	114 T F	144 T F	174 T F
25 T F	55 T F	85 T F	115 T F	145 T F	175 T F
26 T F	56 T F	86 T F	116 T F	146 T F	
27 T F	57 T F	87 T F	117 T F	147 T F	
28 T F	58 T F	88 T F	118 T F	148 T F	
29 T F	59 T F	89 T F	119 T F	149 T F	
30 T F	60 T F	90 T F	120 T F	150 T F	

MCMI

MILLON CLINICAL MULTIAXIAL INVENTORY

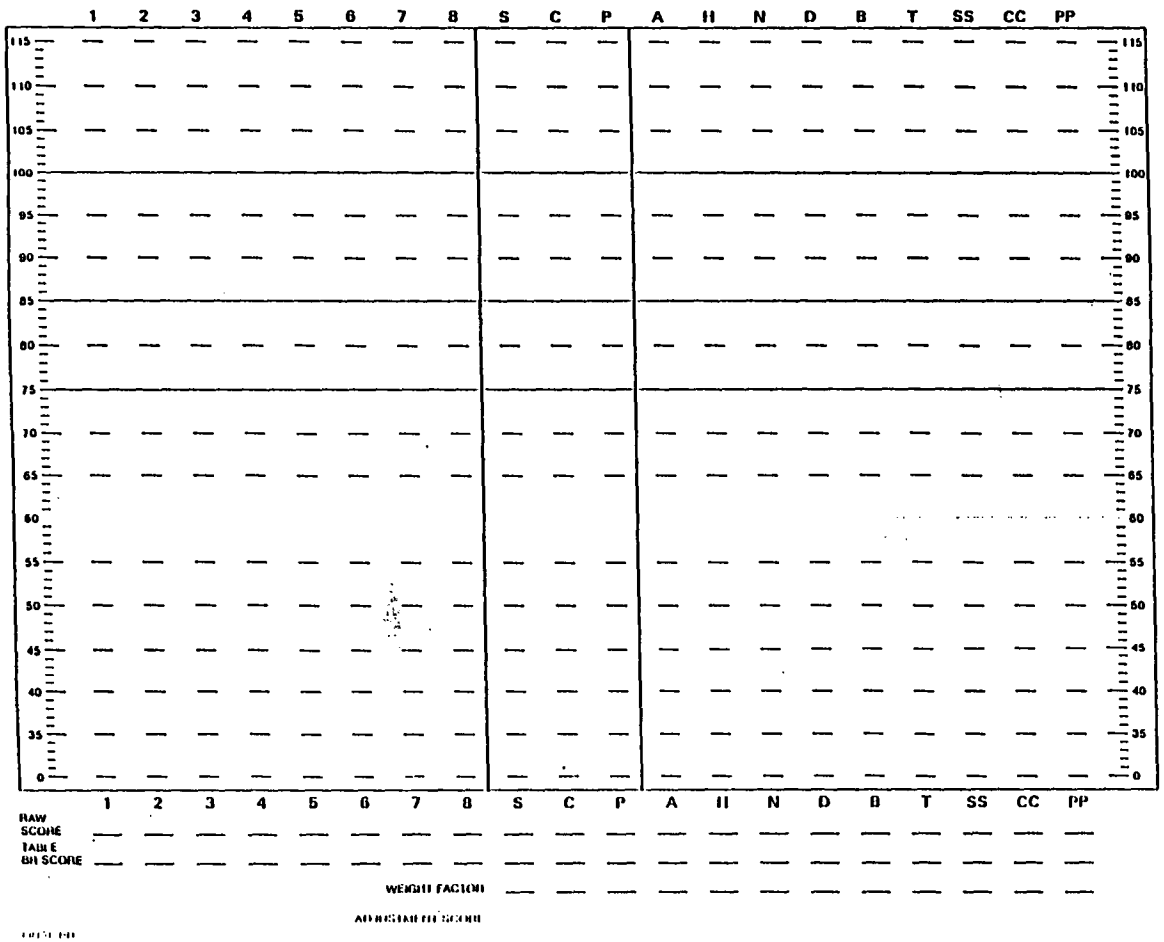
By Theodore Millon

MCMI Hand-Scoring Profile

NAME _____

AGE _____ RACE _____ DATE TESTED ____/____/____

REASON FOR REFERRAL _____



SUM 1-8 _____

TOTAL RAW SCORE SCALES 1-8	WEIGHT FACTOR
< 84	Invalid
84	+16
85	+15
86	+14
87	13
88	12
89	11
100	10
101	9
102	8
103	7
104	6
105	5
106	4
107	+3
108	+2
109	+1
110-131	0
132	-1
133	-1
134	-1
135	-2
136	-2
137	-2
138	-3
139	-3
140	-3
141	-4
142	-4
143	-4
144	-5
145	-5
146	-5
147	-6
148	-6
149	-6
150	-7
151	-7
152	-7
153	-8
154	-8
155	-8
156	-9
157	-9
158	-9
159	-10
160	-10
161	-10
162	-11
163	-11
164	-11
165	-12
166	Invalid

E. Prison environment (Prisoner groups only)

Spending time in gaol has been considered a "high stress" time for inmates. Thinking about how much stress and pressure you feel about being locked up today, please indicate the amount of stress/pressure you are feeling for the following events. You may feel no stress, a little stress, some stress, high stress or extreme stress.

Having to be locked up in the actual prison setting	1 2 3 4 5
Having to live with other inmates in the prison.	1 2 3 4 5
Being separated from family and friends while in prison.	1 2 3 4 5
Not knowing when you will get out or how much time you will have to do.	1 2 3 4 5
Being concerned about your safety and health in prison.	1 2 3 4 5
Having no support or place to go once you are released from prison.	1 2 3 4 5
Feeling guilty about your charges as if you let yourself or others down by being in prison.	1 2 3 4 5
Having family or friends reject you because of being in prison.	1 2 3 4 5
Having conflicts with prison guards.	1 2 3 4 5
Having conflicts with other prisoners.	1 2 3 4 5
Having to do things when you are told to do them rather than when you would like.	1 2 3 4 5

F. Aggression/hostility

HDHQ

Please tell me if the following statements are true or false. If you find it difficult to decide, ask yourself whether you think the statement is *on the whole* true or false.

1.	Most people make friends because friends are likely to be useful to them.	True	False
2.	I do not blame a person for taking advantage of someone who lays himself open to it.	True	False
3.	I usually expect to succeed in things I do.	True	False
4.	I have no enemies who really wish to harm me.	True	False
5.	I wish I could get over worrying about things I have said that may have injured other people's feelings.	True	False

6.	I think nearly anyone would tell a lie to keep out of trouble.	True	False
7.	I don't blame anyone for trying to grab everything he can get in this world.	True	False
8.	My hardest battles are with myself.	True	False
9.	I know who, apart from myself, is responsible for most of my troubles.	True	False
10.	Some people are so bossy that I feel like doing the opposite of what they request, even though I know they are right.	True	False
11.	Some of my family have habits that bother and annoy me very much.	True	False
12.	I believe my sins are unpardonable.	True	False
13.	I have very few quarrels with members of my family.	True	False
14.	I have often lost out on things because I couldn't make up my mind soon enough.	True	False
15.	I can easily make other people afraid of me, and sometimes do it for the fun of it.	True	False
16.	I believe I am a condemned person.	True	False
17.	In school I was sometimes sent to the headmaster for misbehaving.	True	False
18.	I have at times stood in the way of people who were trying to do something, not because it amounted to much but because of the principle of the thing.	True	False
19.	Most people are honest chiefly through fear of being caught.	True	False
20.	Sometimes I enjoy hurting persons I love.	True	False
21.	I have not lived the right kind of life.	True	False
22.	Sometimes I feel as if I must injure either myself or someone else.	True	False
23.	I seem to be about as capable and clever as most others around me.	True	False
24.	I sometimes tease animals.	True	False
25.	I get angry sometimes.	True	False

26.	I am entirely self-confident.	True	False
27.	Often I can't understand why I have been so cross and grouchy.	True	False
28.	I shrink from facing a crisis or difficulty.	True	False
29.	I think most people would lie to get ahead.	True	False
30.	I have sometimes felt that difficulties were piling up so high that I could not overcome them.	True	False
31.	If people had not had it in for me I would have been much more successful.	True	False
32.	I have often found people jealous of my good ideas, just because they had not thought of them first.	True	False
33.	Much of the time I feel as if I have done something wrong or evil.	True	False
34.	I have several times given up doing a thing because I thought too little of my ability.	True	False
35.	Someone has it in for me.	True	False
36.	When someone does me a wrong I feel I should pay him back if I can, just for the principle of the thing.	True	False
37.	I am sure I get a raw deal from life.	True	False
38.	I believe I am being followed.	True	False
39.	At times I have a strong urge to do something harmful or shocking.	True	False
40.	I am easily downed in an argument.	True	False
41.	It is safer to trust nobody.	True	False
42.	I easily become impatient with people.	True	False
43.	At times I think I am no good at all.	True	False
44.	I commonly wonder what hidden reason another person may have for doing something nice for me.	True	False
45.	I get angry easily and then get over it soon.	True	False
46.	At times I feel like smashing things.	True	False
47.	I believe I am being plotted against.	True	False
48.	I certainly feel useless at times.	True	False

49.	At times I feel like picking a fist fight with someone.	True	False
50.	Someone has been trying to rob me.	True	False
51.	I am certainly lacking in self-confidence.	True	False

G. Family environment

As a child did you live:

- ☐ with both parents
- ☐ with one parent
- ☐ with another relative
- ☐ in a foster home
- ☐ in a boys' home

If your parents were separated or divorced,
how old were you when this occurred?

- ☐ 0-4 years
- ☐ 5-9 years
- ☐ 10-14 years
- ☐ 15-19 years

I am going to read some statements about families. You are to decide which of these statements are true of your family and which are false. You may feel that some of the statements are true for some family members and false for others. Answer true if the statement is true for most members. Answer false if the statement is false for most members. If the members are evenly divided, decide what is the stronger overall impression and answer accordingly. Remember, I would like to know what your family seem like to you. So do not try to figure out how other members see your family, but do give me your general impression of your family for each statement.

1. Family members really help and support one another.
2. Family members often keep their feelings to themselves.
3. We fight a lot in our family.
4. We don't do things on our own very often in our family.
5. We feel it is important to be the best at whatever you do.
6. We often talk about political and social problems.

7. We spend most weekends and evenings at home.

8. Family members attend church, synagogue, or Sunday School fairly often.

9. Activities in our family are pretty carefully planned.

10. Family members are rarely ordered around.

11. We often seem to be killing time at home.

12. We say anything we want to around home.

13. Family members rarely become openly angry.

14. In our family, we are strongly encouraged to be independent.
15. Getting ahead in life is very important in our family.

16. We rarely go to lectures, plays or concerts.

17. Friends often come over for dinner or to visit.

18. We don't say prayers in our family.

19. We are generally very neat and orderly.

20. There are very few rules to follow in our family.

21. We put a lot of energy into what we do at home.

22. It's hard to "blow off steam" at home without upsetting someone.

23. Family members sometimes get so angry they throw things.

24. We think things out for ourselves in our family.

25. How much money a person makes is not very important to us.

26. Learning about new and different things is very important in our family.

27. Nobody in our family is active in sports.

28. We often talk about the religious meaning of Christmas, etc.

29. It's often hard to find things when you need them in our household.

30. There is one family member who makes most of the decisions.

31. There is a feeling of togetherness in our family.

32. We tell each other about our personal problems.

33. Family members hardly ever lose their tempers.

34. We come and go as we want to in our family.

35. We believe in competition and "may the best man win".

36. We are not that interested in cultural activities.

37. We often go to movies, sports events, camping, etc.

38. We don't believe in heaven or hell.

39. Being on time is very important in our family.

40. There are set ways of doing things at home.

41. We rarely volunteer when something has to be done at home.

42. If we feel like doing something on the spur of the moment we often just pick up and go.

43. Family members often criticise each other.

44. There is very little privacy in our family.

45. We always strive to do things just a little better the next time.

46. We rarely have intellectual discussions.

47. Everyone in our family has a hobby or two.

48. Family members have strict ideas about what is right and wrong.

49. People change their minds often in our family.

50. There is a strong emphasis on following rules in our family.

51. Family members really back each other up.

52. Someone usually gets upset if you complain in our family.

53. Family members sometimes hit each other.

54. Family members almost always rely on themselves when a problem comes up.

55. Family members rarely worry about job promotions, school grades, etc.

56. Someone in our family plays a musical instrument.

57. Family members are not very involved in recreational activities outside work or school.

58. We believe there are some things you just have to take on faith.

59. Family members make sure their rooms are neat.

60. Everyone has an equal say in family decisions.

61. There is very little group spirit in our family.

62. Money and paying bills is openly talked about in our family.

63. If there's a disagreement in our family, we try hard to smooth things over and keep the peace.

64. Family members strongly encourage each other to stand up for their rights.

65. In our family, we don't try that hard to succeed.

66. Family members often go to the library.

67. Family members sometimes attend courses or take lessons for some hobby or interest (outside of school).

68. In our family each person has different ideas about what is right and wrong.

69. Each person's duties are clearly defined in our family.

70. We can do whatever we want to in our family.

71. We really get along well with each other.

72. We are usually careful about what we say to each other.

73. Family members often try to one-up or out-do each other.

74. It's hard to be by yourself without hurting someone's feelings in our household.

75. "Work before play" is the rule in our family.

76. Watching TV is more important than reading in our family.

77. Family members go out a lot.

78. The Bible is a very important book in our home.

79. Money is not handled very carefully in our family.

80. Rules are pretty inflexible in our household.

81. There is plenty of time and attention for everyone in our family.

82. There are a lot of spontaneous discussions in our family.

83. In our family, we believe you don't get anywhere by raising your voice.

84. We are not really encouraged to speak up for ourselves in our family.

85. Family members are often compared with others as to how well they are doing at work or school.

86. Family members really like music, art and literature.

87. Our main form of entertainment is watching TV or listening to the radio.

88. Family members believe that if you sin you will be punished.

89. Dishes are usually done immediately after eating.

90. You can't get away with much in our family.

H. Alcohol and drug dependence

1.*	Do you feel you are a normal drinker?	Yes	No
2.	Have you ever awakened the morning after some drinking the night before and found that you could not remember a part of the evening before?	Yes	No
3.	Does your wife (or parents) ever worry or complain about your drinking?	Yes	No
4.*	Can you stop drinking without a struggle after one or two drinks?	Yes	No
5.	Do you ever feel bad about your drinking?	Yes	No
6.*	Do friends or relatives think you are a normal drinker?	Yes	No
7.	Do you ever try to limit your drinking to certain times of the day or to certain places?	Yes	No
8.*	Are you always about to stop drinking when you want to?	Yes	No
9.	Have you ever attended a meeting of Alcoholics Anonymous (AA)?	Yes	No
10.	Have you gotten into fights when drinking?	Yes	No
11.	Has drinking ever created problems with you and your wife?	Yes	No
12.	Has your wife (or other family member) ever gone to anyone for help about your drinking?	Yes	No
13.	Have you ever lost friends or girlfriends because of drinking?	Yes	No
14.	Have you ever gotten into trouble at work because of drinking?	Yes	No
15.	Have you ever lost a job because of drinking?	Yes	No
16.	Have you ever neglected your obligations, your family, or your work for two or more days in a row because you were drinking?	Yes	No
17.	Do you ever drink before noon?	Yes	No

18.	Have you ever been told you have liver trouble? Cirrhosis?	Yes	No
19.	Have you ever had delirium tremens (DTs), severe shaking, heard voices or seen things that weren't there after heavy drinking?	Yes	No
20.	Have you ever gone to anyone for help about your drinking?	Yes	No
21.	Have you ever been in a hospital because of drinking?	Yes	No
22.	Have you ever been a patient in a psychiatric hospital or on a psychiatric ward of a general hospital where drinking was part of the problem?	Yes	No
23.	Have you ever been seen at a psychiatric or mental health clinic, or gone to a doctor, social worker, or clergyman for help with an emotional problem in which drinking had played a part?	Yes	No
24.	Have you ever been arrested, even for a few hours, because of drunk behaviour?	Yes	No
25.	Have you ever been arrested for drunk driving or driving after drinking?	Yes	No

The following questions concern information about your possible involvement with drugs, NOT including alcoholic beverages, during the [twelve months prior to incarceration/past twelve months]. Please answer yes or no. In the statements, drug abuse refers to (1) the use of prescribed or over-the-counter drugs in excess of the directions, and (2) any non-medical use of drugs. The various classes of drugs may include: cannabis (marijuhana, hashish), solvents, tranquillizers (e.g., Valium), barbiturates, cocaine, stimulants (e.g., speed), hallucinogens (e.g., LSD) or narcotics (e.g., heroin). Remember that the questions DO NOT include alcoholic beverages. If you have difficulty with a statement then choose the response that is mostly right.

These questions refer to the [12 months prior to incarceration/the past 12 months].

1.	Have you used drugs other than those prescribed for medical reasons?	Yes	No
2.	Do you abuse more than one drug at a time?	Yes	No
3.	Do you always have trouble stopping your use of drugs when you want to?	Yes	No
4.	Have you had "blackouts" or "flashbacks" as a result of drug use?	Yes	No
5.	Do you ever feel bad or guilty about your drug use?	Yes	No
6.	Does you partner (or parents) ever complain about your involvement with drugs?	Yes	No

7.	Have you neglected your family because of your use of drugs?	Yes	No
8.	Have you engaged in illegal activities in order to obtain drugs?	Yes	No
9.	Have you ever experienced withdrawal symptoms (felt sick) when you stopped taking drugs?	Yes	No
10.	Have you had medical problems related to drug use? (e.g., memory loss, hepatitis, fits, bleeding, etc.)	Yes	No

I. Sexual and physical abuse

Were you physically punished as a child? Yes No

Do you think you were physically punished:

- ☐ Less than most people
- ☐ About as much as most people
- ☐ More than most people

Did you ever receive medical treatment because of physical abuse? Yes No

Were you ever sexually abused as a child? Yes No

Were you abused by:

- ☐ one person
- ☐ more than one person

Who were they?

- ☐ a stranger
- ☐ a neighbour or family friend
- ☐ other family member e.g., uncle, brother, grandfather
- ☐ your stepfather
- ☐ your real father

What age were you when it began?

- ☐ 0-4 years
- ☐ 5-9 years
- ☐ 10-14 years
- ☐ 15-19 years

How frequently did this occur?

- ☐ only once
- ☐ about once a month
- ☐ about once a week
- ☐ nearly every day

How long did it last?

- ☐ less than a week
- ☐ less than a month
- ☐ 1-5 months
- ☐ 6-12 months
- ☐ 1-3 years
- ☐ more than 3 years

Did it involve:

- ☐ non-contact, e.g., exposure, self-masturbation
- ☐ contact, e.g., fondling of genitals
- ☐ penetration other than with penis
- ☐ intercourse

Was violence used? Yes No

J. Self-mutilation history (self-mutilation group only)

When was the last time you deliberately injured yourself? _____

How many times have you deliberately injured yourself? _____

Did you deliberately injure yourself before being sentenced to prison? Yes No

How have you deliberately injured yourself? _____

_____

_____

_____

What parts of your body have you deliberately injured? _____

_____

_____

_____

What did you use to deliberately injure yourself? _____

_____

_____

_____

K. Motivation for self-mutilation (self-mutilation group only)

I would like to look at the reasons why you began deliberately injuring yourself. The answer to the questions could be not at all, a little, or a great deal.

Depression

Did you want to die?	1	2	3
Did you feel there was no hope?	1	2	3
Did you feel a failure?	1	2	3
Did you feel you had let others down?	1	2	3
Did you feel sad?	1	2	3

Extrapunitive

Did you want to make someone sorry?	1	2	3
Did you feel angry?	1	2	3
Did you think "I'll show him/her"?	1	2	3
Did you feel you wanted to hurt someone?	1	2	3
Did you think it would upset someone?	1	2	3
Did you want to teach someone a lesson?	1	2	3

Alienation

Did you feel lonely?	1	2	3
Did you feel you weren't needed?	1	2	3
Did you feel you'd been left out of things?	1	2	3
Did you feel you'd been hurt?	1	2	3
Did you feel someone wanted you out of the way?	1	2	3

Operant

Did you want someone to be different towards you?	1	2	3
Did you hope that someone would change?	1	2	3
Did you feel that it was the only way to make someone see what they were doing to you?	1	2	3
Did you feel it was a way of making others understand you?	1	2	3
Did you feel you couldn't bear someone to leave?	1	2	3

Modelling

Did you think if others do it so can I?	1	2	3
Has anyone in your family spoken about injuring themselves?	1	2	3
Did you know anyone else who injured themselves?	1	2	3
Did you hear about self-injury on TV, radio, or read about it in newspapers or magazines?	1	2	3
Did the fact that others do it affect you?	1	2	3

Avoidance

Did you feel you just had to get away from it all for a while?	1	2	3
Did you feel you just wanted to die?	1	2	3
Did you feel you had to get away while things straightened themselves out?	1	2	3
Did you feel you couldn't put up with it much more?	1	2	3
Did you feel you wanted to leave it to others to sort out?	1	2	3

Tension reduction

Did you feel so tense you had to do something?	1	2	3
Did you feel anxious and feel it was the only way of coping?	1	2	3
Did everything seem not quite real before you did it?	1	2	3
Did it hurt as much as you thought it would?	1	2	3
Did you feel less anxious after you had done it?	1	2	3

Janus face

Did you feel you didn't really care if you lived or died?	1	2	3
Did you feel uncertain if you wanted to live or die?	1	2	3
Did you feel you would take a chance on whether you lived or died?	1	2	3
Did you feel you wanted tolive, but also wanted to die?	1	2	3

L. Suicidal intent scale for self-mutilation (self-mutilation group only)

Circumstances

1.	Isolation	0	Somebody present.
		1	Somebody nearby or in contact (e.g., by phone).
		2	No-one nearby or in contact.
2.	Timing	0	Timed so that intervention is probable.
		1	Timed so that intervention is not likely.
		2	Timed so that intervention is highly unlikely.

3.	Precautions against discovery and/or intervention	0	No precautions.
		1	Passive precautions.
		2	Active precautions (e.g., locked door).
4.	Acting to gain help during or after attempt.	0	Notified potential helper.
		1	Contacted but did not specifically notify potential helper.
		2	Did not contact or notify potential helper.
5.	Final acts in anticipation of death	0	None.
		1	Partial preparation.
		2	Definite plans made.
6.	Suicide note	0	Absence of note.
		1	Note written but torn up.
		2	Presence of note.

Self-report

7.	Patient's statement of lethaltiy	0	Thought what he had done would not kill him.
		1	Unsure if what he had done would kill him.
		2	Thought what he had done would kill him.
8.	Stated intent	0	Did not want to die.
		1	Uncertain or did not care if he lived or died.
		2	Wanted to die.
9.	Premeditation	0	Impulsive, no premeditation.
		1	Considered for less than one hour.
		2	Considered for loess than one day.
		3	Considered for more than one day.
10.	Reaction to act	0	Patient glad he has recovered.
		1	Patient uncertain whether is is glad or sorry.
		2	Patient sorry he has recovered.

Risk

11.	Predictable outcome	0	Survival certain.
		1	Death unlikely.
		2	Death likely or certain.
12.	Would death have occurred without medical treatment	0	No.
		1	Uncertain.
		2	Yes.

M. History of suicidal behaviour

Have you attempted suicide in the past? Yes No

How many times? _____

What methods did you use?

- ☐ Gunshot
- ☐ Hanging
- ☐ Self-poisoning - drugs
- ☐ Self-poisoning - other poisonous substances
- ☐ Gas
- ☐ Precipitation
- ☐ Self-immolation
- ☐ Severe cutting/stabbing
- ☐ Electrocution

Were you hospitalsed because of a suicide attempt? Yes No

APPENDIX C

Scales used in Study Two

A. Beliefs Inventory

I am going to read a number of statements and I would like you to answer agree or disagree. It is not necessary to think over any item very long. Be sure to tell me how you actually think about the statements, not how you think you should answer.

	Agree	Disagree		
.	____	____	1.	It is important to me that others approve of me.
.	____	____	2.	I hate to fail at anything.
.	____	____	3.	People who do wrong deserve what they get.
..	____	____	4.	I usually accept what happens philosophically.
..	____	____	5.	If a person wants to, he can be happy under almost any circumstances.
.	____	____	6.	I have a fear of some things that often bothers me.
.	____	____	7.	I usually put off important decisions.
.	____	____	8.	Everyone needs someone he can depend on for help and advice.
.	____	____	9.	"A zebra cannot change his stripes."
.	____	____	10.	I prefer quiet leisure above all things.
..	____	____	11.	I like the respect of others, but I don't have to have it.
.	____	____	12.	I avoid things I cannot do well.
.	____	____	13.	Too many evil persons escape the punishment they deserve.
..	____	____	14.	Frustrations don't upset me.
..	____	____	15.	People are disturbed not by situations but by the view they take of them.
..	____	____	16.	I feel little anxiety over unexpected dangers or future events.
..	____	____	17.	I try to go ahead and get irksome tasks behind me when they come up.
.	____	____	18.	I try to consult an authority on important decisions.
.	____	____	19.	It is almost impossible to overcome the influences of the past.
..	____	____	20.	I like to have a lot of irons in the fire.

.	____	____	21.	I want everyone to like me.
..	____	____	22.	I don't mind competing in activities in which others are better than I.
.	____	____	23.	Those who do wrong deserve to be blamed.
.	____	____	24.	Things should be different from the way they are.
..	____	____	25.	I cause my own moods.
.	____	____	26.	I often can't get my mind off some concern.
.	____	____	27.	I avoid facing my problems.
.	____	____	28.	People need a source of strength outside themselves.
..	____	____	29.	Just because something once strongly affects your life doesn't mean it need do so in the future.
..	____	____	30.	I'm most fulfilled when I have lots to do.
..	____	____	31.	I can like myself even when many others don't.
..	____	____	32.	I like to succeed at something, but I don't feel I have to.
.	____	____	33.	Immorality should be strongly punished.
.	____	____	34.	I often get disturbed over situations I don't like.
..	____	____	35.	People who are miserable have usually made themselves that way.
..	____	____	36.	If I can't keep something from happening, I don't worry about it.
..	____	____	37.	I usually make decisions as promptly as I can.
.	____	____	38.	There are certain people that I depend on greatly.
..	____	____	39.	People overvalue the influence of the past.
..	____	____	40.	I most enjoy throwing myself into a creative project.
.	____	____	41.	If others dislike me, that's their problem, not mine.
.	____	____	42.	It is highly important to me to be successful in everything I do.
..	____	____	43.	I seldom blame people for their wrongdoings.
..	____	____	44.	I usually accept things the way they are, even if I don't like them.

.. ____ ____ 45. A person won't stay angry or blue long unless he keeps himself that way.

. ____ ____ 46. I can't stand to take chances.

. ____ ____ 47. Life is too short to spend it doing unpleasant tasks.

.. ____ ____ 48. I like to stand on my own two feet.

. ____ ____ 49. If I had had different experiences I could be more like I want to be.

. ____ ____ 50. I'd like to retire and quit working entirely.

. ____ ____ 51. I find it hard to go against what others think.

.. ____ ____ 52. I enjoy activities for their own sake, no matter how good I am at them.

. ____ ____ 53. The fear of punishment helps people be good.

.. ____ ____ 54. If things annoy me, I just ignore them.

. ____ ____ 55. The more problems a person has, the less happy he will be.

.. ____ ____ 56. I am seldom anxious over the future.

.. ____ ____ 57. I seldom put things off.

.. ____ ____ 58. I am the only one who can really understand and face my problems.

.. ____ ____ 59. I seldom think of past experiences as affecting me now.

.. ____ ____ 60. Too much leisure time is boring.

.. ____ ____ 61. Although I like approval, it's not a real need for me.

. ____ ____ 62. It bothers me when others are better than I am at something.

. ____ ____ 63. Everyone is basically good.

.. ____ ____ 64. I do what I can to get what I want and then don't worry about it.

.. ____ ____ 65. Nothing is upsetting in itself - only in the way you interpret it.

. ____ ____ 66. I worry a lot about certain things in the future.

. ____ ____ 67. It is difficult for me to do unpleasant chores.

.. ____ ____ 68. I dislike for others to make my decisions for me.

. ____ ____ 69. We are slaves to our personal histories.

. ____ ____ 70. I sometimes wish I could go to a tropical island and just lie on the beach forever.

. ____ ____ 71. I often worry about how much people approve of and accept me.

. ____ ____ 72. It upsets me to make mistakes.

. ____ ____ 73. It's unfair that "the rain falls on both the just and the unjust".

.. ____ ____ 74. I am fairly easy-going about life.

. ____ ____ 75. More people should face up to the unpleasantness of life.

. ____ ____ 76. Sometimes I can't get a fear off my mind.

.. ____ ____ 77. A life of ease is seldom very rewarding.

. ____ ____ 78. I find it easy to seek advice.

. ____ ____ 79. Once something strongly affects your life, it always will.

. ____ ____ 80. I love to lie around.

. ____ ____ 81. I have considerable concern with what people are feeling about me.

. ____ ____ 82. I often become quite annoyed over little things.

.. ____ ____ 83. I usually give someone who has wronged me a second chance.

. ____ ____ 84. People are happiest when they have challenges and problems to overcome.

.. ____ ____ 85. There is never any reason to remain sorrowful for very long.

.. ____ ____ 86. I hardly ever think of such things as death or atomic war.

.. ____ ____ 87. I dislike responsibility.

.. ____ ____ 88. I dislike having to depend on others.

. ____ ____ 89. People never change basically.

.	____	____	90.	Most people work too hard and don't get enough rest.
..	____	____	91.	It is annoying but not upsetting to be criticised.
..	____	____	92.	I'm not afraid to do things which I cannot do well.
..	____	____	93.	No one is evil, even though his deeds may be.
..	____	____	94.	I seldom become upset over the mistakes of others.
..	____	____	95.	Man makes his own hell within himself.
.	____	____	96.	I often find myself planning what I would do in different dangerous situations.
..	____	____	97.	If something is necessary, I do it even if it is unpleasant.
..	____	____	98.	I've learned not to expect someone else to be very concerned about my welfare.
..	____	____	99.	I don't look upon the past with any regrets.
.	____	____	100.	I can't feel really content unless I'm relaxed and doing nothing.

Scoring of the Beliefs Inventory

A. Single dot items

If the item has one dot and the agree box is checked, score one point.

B. Double dot items

If the item has two dots and the disagree box is checked, score one point.

C. Add up point for items:

1, 11, 21, 31, 41, 51, 61, 71, 81, and 91, and enter the total here: _____
The higher the total, the greater the agreement with the irrational idea that *it is an absolute necessity for an adult to have love and approval from peers, family and friends.*

2, 12, 22, 32, 42, 52, 62, 72, 82, and 92, and enter the total here: _____
The higher the total, the greater the agreement with the irrational idea that *you must be unfailingly competent and almost perfect in all you undertake.*

3, 13, 23, 33, 43, 53, 63, 73, 83, and 93, and enter the total here: _____
The higher the total, the greater the agreement with the irrational idea that *certain people are evil, wicked and villainous, and should be punished.*

4, 14, 24, 34, 44, 54, 64, 74, 84, and, 94, and enter the total here: _____
The higher the total, the greater the agreement with the irrational idea that *it is horrible when things are not the way you would like them to be.*

5, 15, 25, 35, 45, 55, 65, 75, 85, and 95, and enter the total here: _____
The higher the total, the greater the agreement with the irrational idea that *external events cause most human misery - people simply react as events trigger their emotions.*

6, 16, 26, 36, 46, 56, 66, 76, 86, and 96, and enter the total here: _____
The higher the total, the greater the agreement with the irrational idea that *you should feel fear or anxiety about anything that is unknown, uncertain or potentially dangerous.*

7, 17, 27, 37, 47, 57, 67, 77, 87, and 97, and enter the total here: _____
The higher the total, the greater the agreement with the irrational idea that *its is easier to avoid than face life difficulties and responsibilities.*

8, 18, 28, 38, 48, 58, 68, 78, 88, and 98, and enter the total here: _____
The higher the total, the greater the agreement with the irrational idea that *you need something other or stronger or greater than yourself to rely on.*

9, 19, 29, 39, 49, 59, 69, 79, 89, and 99, and enter the total here: _____
The higher the total, the greater the agreement with the irrational idea that *the past has a lot to do with determining the present.*

10, 20, 30, 40, 50, 60, 70, 80, 90, and 100, and enter the total here: _____
The higher the total, the greater the agreement with the irrational idea that *happiness can be achieved by inaction, passivity and endless leisure.*

B. Belief Scale

I am going to ask you how strongly you agree with each of the following statements.

1 = strongly disagree
2 = disagree somewhat
3 = neither agree nor disagree
4 = agree somewhat
5 = strongly agree

1.	To be a worthwhile person I must be thoroughly competent in everything I do.	1 2 3 4 5
2.	My negative emotions are the result of external pressures.	1 2 3 4 5
3.	To be happy, I must maintain the approval of all the persons I consider significant.	1 2 3 4 5
4.	Most people who have been unfair to me are generally bad individuals.	1 2 3 4 5
5.	Some of my ways of acting are so ingrained that I could never change them.	1 2 3 4 5
6.	When it looks as if something might go wrong, it is reasonable to be quite concerned.	1 2 3 4 5
7.	Life should be easier than it is.	1 2 3 4 5

8.	It is awful when something I want to happen does not occur.	1 2 3 4 5
9.	It makes more sense to wait than to try to improve a bad life situation.	1 2 3 4 5
10.	I hate it when I cannot eliminate an uncertainty.	1 2 3 4 5
11.	Many events from my past so strongly influence me that it is impossible to change.	1 2 3 4 5
12.	Individuals who take unfair advantage of me should be punished.	1 2 3 4 5
13.	If there is a risk that something bad will happen, it makes sense to be upset.	1 2 3 4 5
14.	It is terrible when things do not go the way I would like.	1 2 3 4 5
15.	I must keep achieving in order to be satisfied with myself.	1 2 3 4 5
16.	Things should turn out better than they usually do.	1 2 3 4 5
17.	I cannot help how I feel when everything is going wrong.	1 2 3 4 5
18.	To be happy I must be loved by the persons who are important to me.	1 2 3 4 5
19.	It is better to ignore personal problems than to try to solve them.	1 2 3 4 5
20.	I dislike having any uncertainty about my future.	1 2 3 4 5

Total: _____

C. Coping Resources Inventory

For each of the next sixty statements, give me the answer that best describes you in the last six months.

Never or rarely
Sometimes
Often
Always or almost always

1. I have plenty of energy

2. I say what I need or want without making excuses or dropping hints.

3. I like myself.

4. I am comfortable with the number of friends I have.
5. I eat junk food.
6. I feel as worthwhile as anyone else.
7. I am happy.
8. I am comfortable talking to strangers.
9. I am part of a group, other than my family, that cares about me.
10. I accept the mysteries of life and death.
11. I see myself as lovable.
12. I actively look for the positive side of people and situations.
13. I exercise vigorously 3-4 times a week.
14. I accept compliments easily.
15. I show others when I care about them.
16. I believe that people are willing to have me talk about my feelings.
17. I can show it when I am sad.
18. I am aware of my good qualities.
19. I express my feelings to close friends.
20. I can make sense out of my world.
21. My weight is within 5 lbs of what it should be.
22. I believe in a power greater than myself.
23. I actively pursue happiness.
24. I can tell other people when I am hurt.
25. I encourage others to talk about their feelings.
26. I like my body.
27. I initiate contact with people.
28. I confide in my friends.
29. I can cry when sad.
30. I want to be of service to others.

31. I can say what I need or want without putting others down.
32. I accept problems that I cannot change.
33. I know what is important in life.
34. I admit when I'm afraid of something.
35. I enjoy being with people.
36. I am tired.
37. I express my feelings clearly and directly.
38. Certain traditions play an important part in my life.
39. I express my feelings of joy.
40. I can identify my emotions.
41. I attend church or religious meetings.
42. I do stretching exercises.
43. I eat well-balanced meals.
44. I pray or meditate.
45. I accept my feelings of anger.
46. I seek to grow spiritually.
47. I can express my feelings of anger.
48. My values and beliefs help me to meet daily challenges.
49. I put myself down.
50. I get along well with others.
51. I snack between meals.
52. I take time to reflect on my life.
53. Other people like me.
54. I laugh wholeheartedly.
55. I am optimistic about my future.
56. I get enough sleep.
57. My emotional life is stable.

58. I feel that no one cares about me.

59. I am shy.

60. I am in good physical shape.

D. Coping Strategies Inventory

The purpose of this part of the interview is to find out the kinds of situations that trouble people in their day-to-day lives and how people deal with them.

Take a few moments to think about an event or situation that has been very stressful for you during the last month. By stressful I mean a situation that was troubling you, either because it made you feel bad or because it took effort to deal with it. It might have been with your family or friends, or within the prison.

Please describe this stressful event. Please describe what happened and include details such as the place, who was involved, what made it important to you, and what you did. The situation could be one that is going on right now or one that has already happened.

Stressful event:

Please think about your chosen event. As I read through the following items please answer them based on how you handled your event.

Please listen to each item and determine the extent to which you used it in handling your chosen event.

1 = Not at all
2 = A little
3 = Somewhat
4 = Much
5 = Very much

1.	I just concentrated on what I had to do next; the next step.	1 2 3 4 5
2.	I tried to get a new angle on the situation.	1 2 3 4 5
3.	I found ways to blow off steam.	1 2 3 4 5
4.	I accepted sympathy and understanding from someone.	1 2 3 4 5
5.	I slept more than usual.	1 2 3 4 5
6.	I hoped the problem would take care of itself.	1 2 3 4 5
7.	I told myself that if I wasn't so careless, things like this wouldn't happen.	1 2 3 4 5
8.	I tried to keep my feelings to myself.	1 2 3 4 5
9.	I changed something so that things would turn out alright.	1 2 3 4 5
10.	I look for the silver lining, so to speak; tried to look on the bright side of things.	1 2 3 4 5
11.	I did some things to get it out of my system.	1 2 3 4 5
12.	I found somebody who was a good listener.	1 2 3 4 5
13.	I went along as if nothing were happening.	1 2 3 4 5
14.	I hoped a miracle would happen.	1 2 3 4 5
15.	I realised that I brought the problem on myself.	1 2 3 4 5
16.	I spent more time alone.	1 2 3 4 5
17.	I stood my ground and fought for what I wanted.	1 2 3 4 5
18.	I told myself things that helped me feel better.	1 2 3 4 5
19.	I let my emotions go.	1 2 3 4 5
20.	I talked to someone about how I was feeling.	1 2 3 4 5

21. I tried to forget the whole thing.	1 2 3 4 5
22. I wished that I never let myself get involved with that situation.	1 2 3 4 5
23. I blamed myself.	1 2 3 4 5
24. I avoided my family and friends.	1 2 3 4 5
25. I made a plan of action and followed it.	1 2 3 4 5
26. I look at things in a different light and tried to make the best of what was available.	1 2 3 4 5
27. I let out my feelings to reduce the stress.	1 2 3 4 5
28. I just spent more time with people I liked.	1 2 3 4 5
29. I didn't let it get to me; I refused to think about it too much.	1 2 3 4 5
30. I wished that the situation would go away or somehow be over with.	1 2 3 4 5
31. I criticised myself for what happened.	1 2 3 4 5
32. I avoided being with people.	1 2 3 4 5
33. I tackled the problem head-on.	1 2 3 4 5
34. I asked myself what was really important, and discovered that things weren't so bad after all.	1 2 3 4 5
35. I let my feelings out somehow.	1 2 3 4 5
36. I talked to someone that I was very close to.	1 2 3 4 5
37. I decided that it was really someone else's problem and not mine.	1 2 3 4 5
38. I wished that the situation had never started.	1 2 3 4 5
39. Since what happened was my fault, I really chewed myself out.	1 2 3 4 5
40. I didn't talk to other people about the problem.	1 2 3 4 5
41. I knew what had to be done, so I doubled my efforts and tried harder to make things work.	1 2 3 4 5
42. I convinced myself that things aren't quite as bad as they seem.	1 2 3 4 5
43. I let my emotions out.	1 2 3 4 5

44. I let my friends help out.	1 2 3 4 5
45. I avoided the person who was causing the trouble.	1 2 3 4 5
46. I had fantasies or wishes about how things might turn out.	1 2 3 4 5
47. I realised that I was personally responsible for my difficulties and really lectured myself.	1 2 3 4 5
48. I spent some time by myself.	1 2 3 4 5
49. It was a tricky problem, so I had to work around the edges to make things come out OK.	1 2 3 4 5
50. I stepped back from the situation and put things into perspective.	1 2 3 4 5
51. My feelings were overwhelming and they just exploded.	1 2 3 4 5
52. I asked a friend or relative I respect for advice.	1 2 3 4 5
53. I made light of the situation and refused to get too serious about it.	1 2 3 4 5
54. I hoped that if I waited long enough, things would turn out OK.	1 2 3 4 5
55. I kicked myself for letting this happen.	1 2 3 4 5
56. I kept my thoughts and feelings to myself.	1 2 3 4 5
57. I worked on solving the problems in the situation.	1 2 3 4 5
58. I reorganised the way I looked at the situation, so things didn't look so bad.	1 2 3 4 5
59. I got in touch with my feelings and just let them go.	1 2 3 4 5
60. I spent some time with my friends.	1 2 3 4 5
61. Every time I thought about it I got upset; so I just stopped thinking about it.	1 2 3 4 5
62. I wished I could have changed what happened.	1 2 3 4 5
63. It was my mistake and I needed to suffer the consequences.	1 2 3 4 5
64. I didn't let my family and friends know what was going on.	1 2 3 4 5
65. I struggled to resolve the problem.	1 2 3 4 5
66. I went over the problem again and again in my mind and finally saw things in a different light.	1 2 3 4 5

67. I was angry and really blew up.	1 2 3 4 5
68. I talked to someone who was in a similar situation.	1 2 3 4 5
69. I avoided thinking or doing anything about the situation.	1 2 3 4 5
70. I thought about fantastic or unreal things that made me feel better.	1 2 3 4 5
71. I told myself how stupid I was.	1 2 3 4 5
72. I did not let others know how I was feeling.	1 2 3 4 5

Scoring sheet for the Coping Strategies Inventory

Problem-solving		Cognitive-restriction		Express-emotions	
1	.....	2	.....	3	.....
9	.....	10	.....	11	.....
17	.....	18	.....	19	.....
25	.....	26	.....	27	.....
33	.....	34	.....	35	.....
41	.....	42	.....	43	.....
49	.....	50	.....	51	.....
57	.....	58	.....	59	.....
65	.....	66	.....	67	.....
Total:		Total:		Total:	

Social-support		Problem-avoidance		Wishful-thinking	
4	.....	5	.....	6	.....
12	.....	13	.....	14	.....
20	.....	21	.....	22	.....
28	.....	29	.....	30	.....
36	.....	37	.....	38	.....
44	.....	45	.....	46	.....
52	.....	53	.....	54	.....
60	.....	61	.....	62	.....
68	.....	69	.....	70	.....
Total:		Total:		Total:	

Self-criticism		Social-withdrawal	
7	.....	8	.....
15	.....	16	.....
23	.....	24	.....
31	.....	32	.....
39	.....	40	.....
47	.....	48	.....
55	.....	56	.....
63	.....	64	.....
71	.....	72	.....
Total:		Total:	

E. Personal Problem Solving Inventory

1.	When a solution to a problem was unsuccessful, I do not examine why it didn't work.	1 2 3 4 5 6
2.	When I am confronted with a complex problem, I do not bother to develop a strategy to collect information so I can define exactly what the problem is.	1 2 3 4 5 6
3.	When my first efforts to solve a problem fail, I become uneasy about my ability to handle the situation.	1 2 3 4 5 6
4.	After I have solved a problem, I do not analyse what went right or what went wrong.	1 2 3 4 5 6
5.*	I am usually able to think up creative and effective alternatives to solve a problem.	1 2 3 4 5 6
6.*	After I have tried to solve a problem with a certain course of action, I take time and compare the actual outcome to what I thought should have happened.	1 2 3 4 5 6
7.*	When I have a problem, I think up as many possible ways to handle it as I can until I can't come up with any more ideas.	1 2 3 4 5 6
8.*	When confronted with a problem, I consistently examine my feelings to find out what is going on in a problem situation.	1 2 3 4 5 6
9.*	I have the ability to solve most problems even though initially no solution is immediately apparent.	1 2 3 4 5 6
10.	Many problem I face are too complex for me to solve.	1 2 3 4 5 6
11.*	I make decisions and am happy with them later.	1 2 3 4 5 6
12.	When confronted with a problem, I tend to do the first thing I can think of to solve it.	1 2 3 4 5 6
13.	Sometimes I do not stop and take time to deal with my problems, but just kind of muddle ahead.	1 2 3 4 5 6
14.	When deciding on an idea or possible solution to a problem, I do not take time to consider the chances of each alternative being successful.	1 2 3 4 5 6
15.*	When confronted with a problem, I stop and think about it before deciding on a next step.	1 2 3 4 5 6
16.	I generally go with the first good idea that comes to mind.	1 2 3 4 5 6

17.*	When making a decision, I weigh the consequences of each alternative and compare them against each other.	1 2 3 4 5 6
18.*	When I make plans to solve a problem, I am almost certain that I can make them work.	1 2 3 4 5 6
19.*	I try to predict the overall results of carrying out a particular course of action.	1 2 3 4 5 6
20.	When I try to think up possible solutions to a problem, I do not come up with very many alternatives.	1 2 3 4 5 6
21.*	Given enough time and effort, I believe I can solve most problems that confront me.	1 2 3 4 5 6
22.*	When faced with a novel situation I have confidence that I can handle problems that may arise.	1 2 3 4 5 6
23.	Even though I work on a problem, sometimes I feel like I am groping or wandering, and am not getting down to the real issue.	1 2 3 4 5 6
24.	I make snap judgements and later regret them.	1 2 3 4 5 6
25.*	I trust my ability to solve new and difficult problems.	1 2 3 4 5 6
26.*	I have a systematic method for comparing alternatives and making decisions.	1 2 3 4 5 6
27.	When confronted with a problem, I do not usually examine what sort of external things my environment may be contributing to my problem.	1 2 3 4 5 6
28.*	When I am confused by a problem, one of the first things I do is survey the situation and consider all the relevant pieces of information.	1 2 3 4 5 6
29.	Sometimes I get so charged up emotionally that I am unable to consider many ways of dealing with my problems.	1 2 3 4 5 6
30.*	After making a decision, the outcome I expected usually matches the actual outcome.	1 2 3 4 5 6
31.	When confronted with a problem, I am unsure of whether I can handle the situation.	1 2 3 4 5 6
32.*	When I become aware of a problem, one of the first things I do is to try to find out exactly what the problem is.	1 2 3 4 5 6

Scoring sheet for the Personal Problem Solving Inventory

Problem-solving confidence		Approach avoidance style		Personal control	
5	.....	1	.....	3	.....
9	.....	2	.....	13	.....
10	.....	4	.....	23	.....
11	.....	6	.....	24	.....
18	.....	7	.....	29	.....
21	.....	8	.....		
22	.....	12	.....		
25	.....	14	.....		
30	.....	15	.....		
31	.....	16	.....		
32	.....	17	.....		
		19	.....		
		20	.....		
		26	.....		
		27	.....		
		28	.....		
Total:		**Total:**		**Total:**	

Full scale total:

APPENDIX D

Scales used in Study Three

THE BETTS QMI VIVIDNESS OF IMAGERY SCALE

Instructions for doing test

The aim of this test is to determine the vividness of your imagery. The items of the test will bring certain images to your mind. You are to rate the vividness of each image by reference to an accompanying rating scale, reproduced below and on top of the next page. For example, if your image is "vague and dim" you give it a rating of 5.

Before turning to items on the next pages, familiarise yourself with the different rating scale categories printed below and on top of the following page. Please do not leave any page until you have completed the items on the page you are doing, and do not go back to check on completed items. Complete each set before moving on to the next set. Try to do each item separately, independently of how you may have done other items.

The image aroused by an item of this test may be:

Perfectly clear and as vivid as the actual experience.	Rating 1
Very clear and comparable in vividness to the actual experience.	Rating 2
Moderately clear and vivid.	Rating 3
Not clear or vivid, but recognisable.	Rating 4
Vague and dim.	Rating 5
So vague and dim as to be hardly discernable.	Rating 6
No image present at all, you only "know" that you are thinking of the object.	Rating 7

An example of an item on the test would be one which asked you to consider an image which comes to your mind's eye of a red apple. If your visual image was moderately clear and vivid you would check the rating scale and mark "3" on the prepared answer sheet. Now turn to the next page when you have understood these instructions and begin the test.

Here is the rating scale again in brief:

Perfectly clear and vivid:	**Rating 1**	**Vague and dim:**	**Rating 5**
Very clear:	**Rating 2**	**Hardly discernible:**	**Rating 6**
Moderately clear:	**Rating 3**	**No image at all:**	**Rating 7**
Recognisable:	**Rating 4**		

Think of some relative or friend whom you frequently see, considering carefully the picture that rises before your mind's eye. Classify the images suggested by each of the following questions as indicated by the degrees of clearness and vividness specified on the Rating Scale.

Item		Rating
1.	The exact contour of face, head, shoulders and body.....	( )
2.	Characteristic poses of head, attitudes of body, etc.....	( )
3.	The precise carriage, length of step, etc. in walking.....	( )
4.	The different colours worn in some familiar costume.....	( )

Think of seeing the following, considering carefully the image which comes to your mind's eye; and classify the image suggested as indicated by the degree of clearness and vividness specified on the Rating Scale.

Item		Rating
5.	The moon as it is sinking below the horizon.....	( )

Think of each of the following sounds, considering carefully the image which comes to your mind's ear, and classify the images suggested by each of the following questions as indicated by the degrees of clearness and vividness specified on the Rating Scale.

Item		Rating
6.	The whistle of a locomotive.....	( )
7.	The honk of an automobile.....	( )
8.	The meowing of a cat.....	( )
9.	The sound of escaping steam.....	( )
10.	The clapping of hands in applause.....	( )

Think of "feeling" or touching each of the following, considering carefully the image which comes to your mind's touch, and classify the images suggested by each of the following questions as indicated by the degrees of clearness and vividness specified on the Rating Scale.

Item		Rating
11.	Sand	( )
12.	Linen	( )
13.	Fur	( )
14.	The prick of a pin	( )
15.	The warmth of a tepid bath	( )

Think of performing each of the following acts, considering carefully the image which comes to your mind's arms, legs, lips, etc., and classify the images suggested as indicated by the degree of clearness and vividness specified on the Rating Scale.

Item		Rating
16.	Running upstairs	( )
17.	Springing across a gutter	( )
18.	Drawing a circle on paper	( )
19.	Reaching up to a high shelf	( )
20.	Kicking something out of your way	( )

Think of tasting each of the following considering carefully the image which comes to your mind's mouth, and classify the images suggested by each of the following questions as indicated by the degrees of clearness and vividness specified on the Rating Scale.

Item		Rating
21.	Salt	( )
22.	Granulated (white) sugar	( )
23.	Oranges	( )
24.	Jelly	( )
25.	Your favourite soup	( )

Think of smelling each of the following, considering carefully the image which comes to your mind's nose, and classify the images suggested by each of the following questions as indicated by the degrees of clearness and vividness specified on the Rating Scale.

Item		Rating
26.	An ill-ventilated room	( )
27.	Cooking cabbage	( )
28.	Roast beef	( )
29.	Fresh paint	( )
30.	New leather	( )

Think of each of the following sensations, considering carefully the image which comes before your mind, and classify the images suggested as indicated by the degrees of clearness and vividness specified on the Rating Scale.

Item		Rating
31.	Fatigue	( )
32.	Hunger	( )
33.	A sore throat	( )
34.	Drowsiness	( )
35.	Repletion as from a very full meal	( )

GORDON TEST OF VISUAL IMAGERY CONTROL

You have just completed a questionnaire that was designed to measure the vividness of different kinds of imagery. In this present questionnaire some additional aspects of your imagery are being studied.

The questions are concerned with the ease with which you can control or manipulate visual images. For some people this task is relatively easy and for others relatively hard. One subject who could not manipulate his imagery easily gave this illustration. He visualised a table, one of whose legs suddenly began to collapse. He then tried to visualise another table with four solid legs, but found it impossible. The image of the first table with its collapsing leg persisted. Another subject reported that when he visualised a table the image was rather vague and dim. He could visualise it briefly but it was difficult to retain by any voluntary effort. In both these illustrations the subjects had difficulty in controlling or manipulating their visual imagery. It is perhaps important to emphasise that these experiences are in no way abnormal and are as often reported as the controllable types of image.

Read each question, then close your eyes while you try to visualise the scene described. Each question is to be answered either Yes, No or Unsure, whichever is the more appropriate. Record your answers on the prepared answer sheet by rating Yes as 1, No as 2 or Unsure as 3.

Remember that your accurate and honest answer to these questions is most important for the validity of this study. If you have any doubts at all regarding the answer to a question, score it as Unsure, i.e., 3. Please be certain that you answer each of the twelve questions.

Ratings: Yes = 1, No = 2, Unsure = 3

Item		Rating
1.	Can you see a car standing in the road in front of..... a house?	( )
2.	Can you see it in colour?.....	( )
3.	Can you now see it in a different colour?.....	( )
4.	Can you now see the same car lying upside down?.....	( )
5.	Can you now see the same car back on its four wheels..... again?	( )
6.	Can you see the car running along the road?.....	( )
7.	Can you see it climb up a very steep hill?.....	( )
8.	Can you see it climb over the top?.....	( )
9.	Can you now see it get out of control and crash through.... a house?	( )
10.	Can you now see the same car running along the road..... with a handsome couple inside?	( )
11.	Can you see the car cross a bridge and fall over the..... side into the stream below?	( )
12.	Can you see the car old and dismantled in a car..... wrecking yard?	( )

STIMULUS-RESPONSE INVENTORIES

ANXIOUSNESS AND HOSTILITY

Choose one of the five alternative degrees of reaction or attitude for each of the following items.

1. You are going to meet a new date.

Heart beats faster	Not at all	1	2	3	4	5	Much faster
Perspire	Not at all	1	2	3	4	5	Perspire much
Need to urinate frequently	Not at all	1	2	3	4	5	Very frequently
Mouth gets dry	Not at all	1	2	3	4	5	Very dry
Have loose bowels	None	1	2	3	4	5	Very much
Experience nausea	Not at all	1	2	3	4	5	Much nausea

2. You are crawling along a ledge high on a mountain side.

Heart beats faster	Not at all	1	2	3	4	5	Much faster
Perspire	Not at all	1	2	3	4	5	Perspire much
Need to urinate frequently	Not at all	1	2	3	4	5	Very frequently
Mouth gets dry	Not at all	1	2	3	4	5	Very dry
Have loose bowels	None	1	2	3	4	5	Very much
Experience nausea	Not at all	1	2	3	4	5	Much nausea

3. You are getting up to give a speech before a large group.

Heart beats faster	Not at all	1	2	3	4	5	Much faster
Perspire	Not at all	1	2	3	4	5	Perspire much
Need to urinate frequently	Not at all	1	2	3	4	5	Very frequently
Mouth gets dry	Not at all	1	2	3	4	5	Very dry
Have loose bowels	None	1	2	3	4	5	Very much
Experience nausea	Not at all	1	2	3	4	5	Much nausea

4. You are going to talk to someone to seek help in solving a personal problem.

Heart beats faster	Not at all	1	2	3	4	5	Much faster
Perspire	Not at all	1	2	3	4	5	Perspire much
Need to urinate frequently	Not at all	1	2	3	4	5	Very frequently
Mouth gets dry	Not at all	1	2	3	4	5	Very dry
Have loose bowels	None	1	2	3	4	5	Very much
Experience nausea	Not at all	1	2	3	4	5	Much nausea

5. You are going into an interview for a very important job.

Heart beats faster	Not at all	1	2	3	4	5	Much faster
Perspire	Not at all	1	2	3	4	5	Perspire much
Need to urinate frequently	Not at all	1	2	3	4	5	Very frequently
Mouth gets dry	Not at all	1	2	3	4	5	Very dry
Have loose bowels	None	1	2	3	4	5	Very much
Experience nausea	Not at all	1	2	3	4	5	Much nausea

6. You are talking to someone and he or she does not answer.

Heart beats faster	Not at all	1	2	3	4	5	Much faster
Perspire	Not at all	1	2	3	4	5	Very much
Muscles become tense	Not at all	1	2	3	4	5	Very tense
Mouth gets dry	Not at all	1	2	3	4	5	Very dry
Breathing becomes rapid	Not at all	1	2	3	4	5	Very rapid
Hands become sweaty	Not at all	1	2	3	4	5	Very sweaty

7. Someone has lost an important book of yours.

Heart beats faster	Not at all	1	2	3	4	5	Much faster
Perspire	Not at all	1	2	3	4	5	Very much
Muscles become tense	Not at all	1	2	3	4	5	Very tense
Mouth gets dry	Not at all	1	2	3	4	5	Very dry
Breathing becomes rapid	Not at all	1	2	3	4	5	Very rapid
Hands become sweaty	Not at all	1	2	3	4	5	Very sweaty

8. You have just found out that someone has told lies about you.

Heart beats faster	Not at all	1	2	3	4	5	Much faster
Perspire	Not at all	1	2	3	4	5	Very much
Muscles become tense	Not at all	1	2	3	4	5	Very tense
Mouth gets dry	Not at all	1	2	3	4	5	Very dry
Breathing becomes rapid	Not at all	1	2	3	4	5	Very rapid
Hands become sweaty	Not at all	1	2	3	4	5	Very sweaty

9. You arrange to meet someone and he or she does not show up.

Heart beats faster	Not at all	1	2	3	4	5	Much faster
Perspire	Not at all	1	2	3	4	5	Very much
Muscles become tense	Not at all	1	2	3	4	5	Very tense
Mouth gets dry	Not at all	1	2	3	4	5	Very dry
Breathing becomes rapid	Not at all	1	2	3	4	5	Very rapid
Hands become sweaty	Not at all	1	2	3	4	5	Very sweaty

10. You are carrying a cup of coffee to the table and someone bumps into you.

Heart beats faster	Not at all	1	2	3	4	5	Much faster
Perspire	Not at all	1	2	3	4	5	Very much
Muscles become tense	Not at all	1	2	3	4	5	Very tense
Mouth gets dry	Not at all	1	2	3	4	5	Very dry
Breathing becomes rapid	Not at all	1	2	3	4	5	Very rapid
Hands become sweaty	Not at all	1	2	3	4	5	Very sweaty

EXAMPLES OF VISUAL ANALOGUE SCALES

Visual Analogue Scales

Script type: _____

Stage: Setting the scene

How did you feel: Relaxed — Tense

How did you feel: Relaxed — Anxious

How did you feel: Calm — Angry

How did you feel: Unafraid — Afraid

How did you feel: Happy — Sad

How did you feel: Normal — Unreal

How did you feel: Uptight — Relieved

How well were you able to put yourself into the scene described: Clear — Unclear

How close to real life was that scene: Not close — Very close

APPENDIX E

Examples of imagery scripts.

SELF-MUTILATION SCRIPT

1. Setting the scene

Right, you are in your cell. Really put yourself in your cell. You said the mattress was on the floor. You are laying on the mattress on the floor. Feel the mattress under you. You are laying on your side. You can see the bed and the metal cabinet. You said there were clothes on top of the metal cabinet, shorts and T-shirts. Look at the walls. See the yellow coloured walls, the white ceiling. Look at the floor You can see the grey floor. You said you were feeling uptight as you lay on your mattress. Concentrate on that feeling right now (pause). You can see the toilet and the sink. Really see the stainless steel of the sink. See the three metal shelves. You said there were letters, pens and letter forms on the shelves. Really see the things on the shelves. You said you were feeling pretty uptight. A big man in the yard had been putting pressure on you. Remember how that made you feel. You are laying on your side on the mattress thinking about the man hassling you. You said you were feeling uptight. Concentrate on that feeling right now (pause). Now open your eyes and switch that scene off.

2. Approach

Right, you are laying on your side on the mattress on the floor. You said you were feeling uptight. One big man has been hassling you and you want to get out of the yard. You have to find a way to get out of the yard. You said you stood up. Stand up and walk towards the sink. See the red plastic razors. Reach out and pick up a razor. Really feel the razor in your hand. You said you broke the razor. Feel the pressure it takes to break the razor. See the red plastic break. Pull out the razor blade. Drop the red plastic into the bin. You said you were feeling uptight and worried about getting out of the yard. Concentrate on that feeling right now (pause). Pick up the other razor, reach out and pick up the other razor. Hear the plastic break. Take out the razor blade. Throw the red plastic into the bin. Take the two razor blades in your hands. Really see the razor blades in your hands. See the sharp edges of the razor blades. You said you were glad that you had broken the razors. Walk back to the mattress. Lay back down on the mattress. You said you were worried about getting out of the yard. You told me you were feeling uptight. You said you were feeling strange and weird. Concentrate on those feelings right now (pause). Now open your eyes and switch that scene off.

3. Incident

Right, you are laying on the mattress on your side. You have the razor blade in your right hand. Reach out and start digging into your left wrist with the razor blade. Feel the pressure of the blade against your skin. You said it didn't hurt as you began to dig a hole in your wrist. See the blood begin to ooze out. You keep digging as your wrist starts to bleed. You said you felt good as you started digging into your arm. Concentrate on that feeling right now (pause). You keep digging a hole in your left wrist. See the cut. Really see the blood trickling out. You move the razor blade across your wrist next to the cut. Begin to make a new cut. You said you could feel some sensation. You said you stopped cutting. Move the razor blade back to the first cut. You start digging again. You told me it didn't hurt. You said you were feeling good. Concentrate on that feeling right now (pause). Now open your eyes and switch that scene off.

4. Consequence

Right, you have just dug a hole in your wrist. The blood is trickling out. You stop cutting because the blood is not spurting out. You are laying on your side on the mattress waiting for the guards to come. Really look at the cut. See the hole in your wrist. See the blood trickle out. You said there was no pain. You told me you were feeling good as you wait for the guards

to come. Concentrate on that feeling right now (pause). You said you had cut close to the tendon. Bend your finger. See your wrist move. Straighten your finger. See the bubble forming in the blood. Bend your finger again. Feel yourself straighten your finger. See the bubble that it makes. You are laying on your mattress on your side watching the bubbles in your blood. You said you were feeling good as you watch your finger move and the blood bubble. Concentrate on that feeling right now (pause). Now open your eyes and switch that scene off.

ACCIDENTAL INJURY SCRIPT

1. Setting the scene

Right, you are in the kitchen of your brother-in-law's house. You are the only one there. You can hear the radio blaring in the empty house. Look around the kitchen. It is a smallish room, part of an open plan area. You can see the plaster on the walls. You have been stopping up the joins and the cracks. Really see where you have been doing this. Look up, you can see the bulkhead running the length of the room. You said you were feeling OK as you looked around the kitchen. Concentrate on that feeling right now (pause). Look around you. You can see sawhorses and planks of wood. There are bags of plaster and buckets. Really see the bags of plaster laying on the floor. The place is a bit dusty. You can see bits of plaster on the floor where you have been working. The radio is going in the background and you have just finished a bucket of plaster. You said you were feeling pretty good. Concentrate on that feeling right now (pause). Now open your eyes and switch that scene off.

2. Approach

Right, it is just after lunch and you are in your brother-in-law's house. You have been stopping up the joins and cracks in the plaster. You decide to clean your trowel. Really see the trowel in your hand. Feel the weight of it. You bend down and pick up the sand paper float. Feel it in your hand. See how the sand paper is attached at either end. Feel the weight of the sand paper float in your hand. Look at the trowel. You can see bits of dry plaster on the trowel. You can see the sharp edge of the blade. You said you were feeling fine. Concentrate on that feeling right now (pause). You start to run the sand paper float along the trowel. See it run up and down the length of the trowel. Hear the noise it is making. Hear the scraping noise. Dust is starting to come off the trowel. See the plaster dust in the air. The trowel is beginning to clean up. You run the sand paper over the trowel and the dust is rising into the air. You said you were feeling pretty good as you ran the sand paper over the trowel. Concentrate on that feeling right now (pause). Now open your eyes and switch that scene off.

3. Incident

Right, you are running the sand paper over the trowel. Suddenly it slips. The trowel slips sideways. It slices into your finger. It cuts through the skin and across your knuckle. You said you could feel the pain. You can see the blood. It has happened so quickly, there was nothing you could do. You said you were feeling a bit shocked. You throw away your tools. Hear them clatter onto the floor. Your hand is bleeding and you said it was beginning to hurt. Concentrate on that feeling right now (pause). You think, oh s....t, that hurt. You said your heart started to thump. You look at your thumb. You can see the skin peeled back over your knuckle. You said it was hurting. The blood is dripping down your hand. You said you had a funny, queasy feeling in your stomach. The cut is really deep. You will need to go to the doctor. The blood is running down your hand. You said it was hurting pretty badly. Concentrate on how you are feeling right now (pause). Now open your eyes and switch that scene off.

4. Consequence

Right, you have cut your thumb. You said it was hurting more and more. You reach across from the other side and reach into the pocket of your overall. Pull out your hanky. Look at your thumb. You reach out and pull the skin back over the wound. Wrap your hanky fairly tightly around the wound. You said it really began to hurt at this point. You said it feels like there is metal still cutting into you. Concentrate on how you are feeling right now (pause). You can see the hanky wrapped around your thumb. The blood is starting to ooze through and stain the hanky. You need something else to wrap around it. You reach across and try to get the hanky out of the pocket of your jeans. You grab hold of the hanky and pull it out. Wrap it around your finger. You said the pain was really bad by now. You remember that your wife has the car. You are stuck there on your own with no car and no telephone. Concentrate on how you are feeling right now (pause). Now open your eyes and switch that scene off.

AGGRESSION SCRIPT

1. Setting the scene

Right, you have come down to the hospital and you to see the doctor. You walk in through the door. You can see T..... sitting on the bench. You recognise him straight away. Really see him sitting there. He is small with blonde hair. You walk across and sit on the bench. There is another fellow from E yard there and you sit beside him. You are sitting on the bench in the waiting area. Feel the bench underneath you. Things have been going really badly and you are not feeling really good. Concentrate on that feeling right now (pause). You are sitting on the bench. Really put yourself there. Look around. You can see the cream brick walls and the cream lino on the floor. There is the TV in the corner. You can see the door into the doctors room and the doors at the end leading to the examination rooms and the nurses rooms. You are talking to the other fellow from E yard. Concentrate on how you are feeling right now (pause). Now open your eyes and switch that scene off.

2. Approach

Right, you are waiting to see the doctor. You are talking to your mate about the problems you are having in the yard. He tells you you either have to put up with it and suffer for the rest of your time inside or bash them. T..... says you only bash old people. Really hear him say that. You are angry. He says you only bash people in their 80s. You are really furious. This is the final straw. You start to shake and your heart is thumping. Concentrate on that feeling right now (pause). You tell him you want to fight. Your heart is thumping and you break out in a sweat and feel really hot. Your eyes feel like they are 6 feet wide, like nothing will get past your vision. You want to kill T..... See him standing there. He says he wont fight you inside. You tell him to go outside. You are really furious as you walk across the room, through the door and outside. Concentrate on how you are feeling right now (pause). Now open your eyes and switch that scene off.

3. Incident

Right, you go outside. You are absolutely furious and you want to kill T..... There are two screws standing there. Really see them standing there. You don't care. You start to butt each other with your chests. T..... is small, you can see the top of his head as he butts you with his chest. You butt back and he goes flying. You can feel the smirk on your face, your face stretched tight in a stupid smile. You are furious and you want to kill him. He tries to walk around the corner. You grab him by the back of the neck and slam his head into the concrete wall. Concentrate on how you are feeling right now (pause). T..... flies at you and head butts you in the stomach. Feel the wind being knocked out of you. You are furious and your

heart is thumping. You grab him by the shoulders and you both go down. You fall on the hedge. T..... is on top of you. You grab hold of his jumper and pull it over his head. You punch him again and again. You are really angry and you want to kill him. Concentrate on that feeling right now (pause). Now open your eyes and switch that scene off.

4. Consequence

Right, one of the screws grabs hold of you. Feel his arm in front of you, stopping you from getting to T..... You wont to kill him. See the old screw with the beard leading T..... out of the gate and away from you. The screw with you is telling you to calm down, boy, there is no need for violence. You want him to let you go, you want to kill T..... You heart is thumping and you are feeling hot and furious. Concentrate on that feeling right now (pause). The old fellow comes back down. Really see him standing there. He leads you inside. You follow him through the entrance into the waiting area. You are still furious. He asks is you want to see the psychologist. You are really angry and you are shaking. See the psychologist walking towards you. Really see her there, little with blonde hair. You are really angry. You are shaking and your heart is thumping. Concentrate on that feeling right now (pause). Now open your eyes and switch that scene off.

NEUTRAL SCRIPT

1. Setting the scene

Right, you are in the kitchen and you have decided to make a cup of coffee. Look around, see the window over the sink. See the taps and the shiny stainless steel of the sink. See the bench, see the bench under the window and along the other wall. See the jug sitting in the middle. See the cord of the jug plugged into the wall. See the power point. The switch is turned on. You are feeling all right as you look around the kitchen. Concentrate on that feeling right now (pause). See the cupboard above the bench. See the cutlery drawer in the cupboard below the bench. Look around. See the fridge standing over from the sink. Hear the fridge motor turn on. Look down. See the lino on the floor. See the walkway through to the lounge room. Take a few steps. Hear your steps on the lino floor. You are feeling all right as you walk around the kitchen. Concentrate on that feeling right now (pause). Now open your eyes and switch that scene off.

2. Approach

Right, you are in the kitchen and you have decided to make a cup of coffee. Reach out and tap the button on the jug. Hear the jug start to work. See yourself walk over to the fridge. Reach out and grab the handle of the fridge. Feel the handle in your hand. Pull back. See the fridge door open. Look inside the fridge. See the milk carton. Really see yourself reach out and pick up the milk carton. Feel the weight of the milk carton in your hand. See yourself walk back and put the milk carton on the bench. You are feeling all right, nice and relaxed. Concentrate on that feeling right now (pause). Reach up and open the cupboard door. See the coffee, the Pablo jar. Reach out and pick up the coffee jar. Feel the coffee jar in your hand. Put the coffee on the bench. Hear the glass jar click on the bench as you put it down. Reach back and pick up the sugar. Really see yourself put the sugar on the bench. Reach out and pick up the black porcelain mug. Feel the weight of the mug in your hand. Put it on the bench. Hear the noise it makes as you put it on the bench. Open the cutlery drawer. See the cutlery in the drawer. Reach out and pick up a teaspoon. You are feeling all right, nice and relaxed as you pick up a teaspoon. Concentrate on that feeling right now (pause). Now open your eyes and switch that scene off.

3. Incident

Right, you are making a cup of coffee in the kitchen. You can hear the jug, hear the noise it makes just before it boils. Reach out and pick up the coffee jar. Really see yourself twist the lid and take it off. Put the lid on the bench. Pick up the teaspoon. Feel the teaspoon in your hand. Put the teaspoon into the coffee. See the coffee on the teaspoon. Put the coffee into the mug. See the coffee in the bottom of your black mug. You are feeling nice and relaxed as you make the coffee. Concentrate on that feeling right now (pause). You can hear the jug nearly boiling. Pick up the sugar. Put the teaspoon into the sugar and fill it up. Put the sugar into the mug. See the white sugar on top of the brown coffee in the bottom on the mug. The jug boils and it clicks off. Hear it click off. Pick up the jug. Feel the weight of the jug in your hand. Pour the water into the mug. See the steam rise from the water as you pour it in. Put the jug back down. Pick up the milk. Open the top of the carton. Pour the milk into the coffee. See the coffee change colour. Pick up the teaspoon and stir. Hear the noise the teaspoon makes as it moves against the mug. You are feeling nice and relaxed. Concentrate on that feeling right now (pause). Now open your eyes and switch that scene off.

4. Consequence

Right, you are made your coffee. Smell the coffee. See the steam rise from the coffee in your black mug. Pick up the mug. Feel the weight of the mug in your hand. Feel the heat from the coffee on your hand. Turn around. You are walking across the kitchen. Hear your footsteps on the lino floor. Walk through to the lounge room. You are feeling all right, loose and relaxed as you walk to the lounge room. Concentrate on that feeling right now (pause). See yourself put the coffee on the table beside the armchair. Sit in the chair. See the brown woolly material of the chair. Feel how comfortable the armchair is. Reach out and pick up the coffee. See yourself raise it to your lips. You take a sip of coffee. Taste the coffee, smell it. Feel how hot it is. Put the cup back down. Reach out and pick up your cigarettes. Take one from the packet and raise it to your lips. Reach out for your lighter. Flick the lighter. See the flame. Hold it to the tip of the cigarette and draw back. Taste the cigarette. You are feeling nice and relaxed as you have a coffee and cigarette. Concentrate on that feeling right now (pause). Now open your eyes and switch that scene off.

APPENDIX F

Means and standard deviations of
blood pressure and pulse rate measures.

Table 33: The means and standard deviations for blood pressure and pulse rate for the three groups.

Measure		Self-mutilators	Prisoner controls	Normal controls
Systolic BP	$\bar{X}$	123.588	125.667	124.583
	SD	9.481	12.551	7.609
Diastolic BP	$\bar{X}$	72.882	72.867	78.500
	SD	12.494	7.539	12.746
Pulse rate	$\bar{X}$	73.706	71.200	64.083
	SD	15.078	9.481	10.184

APPENDIX G

Means and standard deviations for the individual items of the S-R Inventory

Table 34: The means and standard deviations for the stimulus-response inventory for the three groups.

Measure		Self-mutilators	Prisoner controls	Normal controls
Anxiousness	$\bar{X}$	3.367	3.554	3.462
Heart rate	SD	0.852	1.027	0.854
Anxiousness	$\bar{X}$	2.600	2.600	2.600
Perspiring	SD	1.008	1.061	0.983
Anxiousness	$\bar{X}$	1.722	1.631	1.631
Urinating	SD	0.746	0.972	0.553
Anxiousness	$\bar{X}$	2.233	1.985	2.815
Dry mouth	SD	0.812	1.248	1.112
Anxiousness	$\bar{X}$	1.344	1.231	1.231
Loose bowels	SD	0.484	0.364	0.315
Anxiousness	$\bar{X}$	1.656	1.646	1.985
Nausea	SD	0.828	1.087	0.768
Hostility	$\bar{X}$	2.822	2.892	2.523
Heart rate	SD	1.121	1.070	0.926
Hostility	$\bar{X}$	2.022	2.092	1.492
Perspiring	SD	0.719	1.130	0.719
Hostility	$\bar{X}$	2.978	2.785	2.446
Tense muscles	SD	0.834	1.266	0.796
Hostility	$\bar{X}$	1.800	1.892	1.769
Dry mouth	SD	0.617	1.051	0.860
Hostility	$\bar{X}$	2.567	2.462	1.892
Rapid breathing	SD	0.807	1.176	0.751
Hostility	$\bar{X}$	2.289	2.200	1.800
Sweaty hands	SD	0.946	1.143	0.980
Total	$\bar{X}$	137.111	136.538	128.308
	SD	34.605	56.277	33.373

APPENDIX H

Table of means and standard deviations for the
VAS Unclear/Clear and the VAS Not Close/Very Close

Table 35: The means and standard deviations for the VASs Unclear/Clear and Not Close/Close for each stage of each script for the three groups.

		SCRIPTS															
		Self-mutilation				Neutral				Accidental Injury				Aggression			
DVAR	GROUP	Scene	Approach	Incident	Conseq	Scene	Approach	Incident	Conseq	Scene	Approach	Incident	Conseq	Scene	Approach	Incident	Conseq
UNCLEAR/ CLEAR	S-M	68.60	70.33	77.33	77.13	76.33	79.60	81.07	82.07	80.33	82.93	74.87	75.47	77.53	79.00	71.60	76.40
		(26.76)	(31.39)	(22.93)	(26.15)	(27.40)	(16.57)	(18.49)	(17.42)	(20.45)	(19.98)	(28.13)	(29.01)	(22.34)	(21.40)	(26.54)	(21.63)
	P-C					86.33	75.33	75.78	72.22	87.00	83.78	85.67	86.78	89.75	87.37	88.37	90.62
						(15.52)	(33.26)	(30.87)	(33.63)	(17.23)	(16.42)	(15.03)	(12.68)	(15.32)	(12.97)	(15.91)	(13.97)
	N-C					82.17	82.17	84.17	82.58	75.33	79.00	80.58	77.25	76.60	82.30	84.40	80.80
						(10.34)	(10.88)	(11.09)	(11.85)	(19.07)	(15.63)	(12.38)	(15.34)	(9.89)	(10.20)	(8.30)	(16.54)
NOT CLOSE/ CLOSE	S-M	87.60	88.53	88.47	89.60	83.80	84.07	80.20	86.33	81.40	87.33	85.73	87.60	84.80	86.20	86.87	88.07
		(11.67)	(9.42)	(13.23)	(9.36)	(17.72)	(16.90)	(22.44)	(15.01)	(24.04)	(10.78)	(12.32)	(11.46)	(13.26)	(11.04)	(9.60)	(13.19)
	P-C					77.11	77.22	82.44	85.44	83.33	79.78	84.44	84.00	83.37	85.25	85.37	86.50
						(20.53)	(27.23)	(18.95)	(15.55)	(17.03)	(18.38)	(15.70)	(16.25)	(18.60)	(15.25)	(17.06)	(17.66)
	N-C					77.58	75.83	79.92	79.75	77.50	80.42	77.08	75.67	76.80	80.40	81.80	79.60
						(17.92)	(21.32)	(15.43)	(17.61)	(13.15)	(13.01)	(22.17)	(18.71)	(13.68)	(10.99)	(10.26)	(13.44)

APPENDIX I

Post hoc analyses for script x stage interactions comparing the three control scripts for all groups.

Table 36: The F values and significance levels for the script by stage interactions of the VAS responses to the three control scripts for all groups (df=1,206)

STAGE	DVAR	SCRIPT COMPARISON	FVALUE	PVALUE
Scene setting	Relaxed/ Tense	Neutral v accidental injury	1.456	.2237
		Neutral v aggression	27.922	.0001
		Accidental injury v aggression	16.627	.0002
	Relaxed/ Anxious	Neutral v accidental injury	7.337	.0121
		Neutral v aggression	35.571	.0001
		Accidental injury v aggression	10.597	.0030
	Calm/ Angry	Neutral v accidental injury	1.633	.1978
		Neutral v aggression	41.995	.0001
		Accidental injury v aggression	27.065	.0001
	Unafraid/ Afraid	Neutral v accidental injury	5.489	.0283
		Neutral v aggression	8.137	.0088
		Accidental injury v aggression	0.260	.5491
	Happy/ Sad	Neutral v accidental injury	0.261	.5921
		Neutral v aggression	4.808	.0322
		Accidental injury v aggression	7.309	.0088
	Normal/ Unreal	Neutral v accidental injury	3.211	.0746
		Neutral v aggression	14.318	.0002
		Accidental injury v aggression	3.968	.0477
	Relieved/ Uptight	Neutral v accidental injury	6.634	.0114
		Neutral v aggression	31.946	.0001
		Accidental injury v aggression	9.464	.0026
Approach	Relaxed/ Tense	Neutral v accidental injury	24.636	.0001
		Neutral v aggression	103.473	.0001
		Accidental injury v aggression	27.131	.0001
	Relaxed/ Anxious	Neutral v accidental injury	21.753	.0001
		Neutral v aggression	86.189	.0001
		Accidental injury v aggression	21.343	.0001
	Calm/ Angry	Neutral v accidental injury	12.676	.0015
		Neutral v aggression	154.673	.0001
		Accidental injury v aggression	78.791	.0001
	Unafraid/ Afraid	Neutral v accidental injury	7.304	.0126
		Neutral v aggression	23.535	.0001
		Accidental injury v aggression	4.616	.0425

	Happy/ Sad	Neutral v accidental injury	1.593	.2071
		Neutral v aggression	25.155	.0001
		Accidental injury v aggression	39.410	.0001
	Normal/ Unreal	Neutral v accidental injury	19.447	.0001
		Neutral v aggression	68.181	.0001
		Accidental injury v aggression	14.802	.0002
	Relieved/ Uptight	Neutral v accidental injury	10.286	.0017
		Neutral v aggression	57.437	.0001
		Accidental injury v aggression	19.110	.0001
Incident	Relaxed/ Tense	Neutral v accidental injury	118.990	.0001
		Neutral v aggression	175.105	.0001
		Accidental injury v aggression	5.403	.0268
	Relaxed/ Anxious	Neutral v accidental injury	124.169	.0001
		Neutral v aggression	147.131	.0001
		Accidental injury v aggression	0.973	.3033
	Calm/ Angry	Neutral v accidental injury	94.437	.0001
		Neutral v aggression	256.650	.0001
		Accidental injury v aggression	39.721	.0001
	Unafraid/ Afraid	Neutral v accidental injury	119.474	.0001
		Neutral v aggression	38.431	.0001
		Accidental injury v aggression	22.384	.0001
	Happy/ Sad	Neutral v accidental injury	42.457	.0001
		Neutral v aggression	52.744	.0001
		Accidental injury v aggression	0.557	.4436
	Normal/ Unreal	Neutral v accidental injury	59.648	.0001
		Neutral v aggression	64.075	.0001
		Accidental injury v aggression	0.079	.7786
	Relieved/ Uptight	Neutral v accidental injury	37.376	.0001
		Neutral v aggression	82.192	.0001
		Accidental injury v aggression	8.716	.0039
	Relaxed/ Tense	Neutral v accidental injury	75.578	.0001
		Neutral v aggression	79.685	.0001
		Accidental injury v aggression	0.054	.7697
	Relaxed/ Anxious	Neutral v accidental injury	110.951	.0001
		Neutral v aggression	100.779	.0001
		Accidental injury v aggression	0.245	.5623
	Calm/ Angry	Neutral v accidental injury	74.246	.0001
		Neutral v aggression	144.277	.0001
		Accidental injury v aggression	11.526	.0023

Unafraid/ Afraid	Neutral v accidental injury	68.164	.0001
	Neutral v aggression	33.341	.0001
	Accidental injury v aggression	6.160	.0209
Happy/ Sad	Neutral v accidental injury	44.804	.0001
	Neutral v aggression	78.919	.0001
	Accidental injury v aggression	4.796	.0324
Normal/ Unreal	Neutral v accidental injury	40.79	.0001
	Neutral v aggression	47.517	.0001
	Accidental injury v aggression	0.259	.6113
Relieved/ Uptight	Neutral v accidental injury	15.875	.0001
	Neutral v aggression	33.120	.0001
	Accidental injury v aggression	3.135	.0794

APPENDIX J

Post hoc analyses for script x stage interactions comparing VAS responses to all scripts for the self-mutilation group only.

Table 37: The F values and significance levels for the script by stage interactions of the VAS responses to all scripts for the self-mutilation group (df=1,135)

STAGE	DVAR	SCRIPT COMPARISON	FVALUE	PVALUE
Scene setting	Relaxed/ Tense	Self-mutilation v neutral	22.948	.0001
		Self-mutilation v accident Injury	23.615	.0001
		Self-mutilation v aggression	4.130	.0612
		Neutral v accidental injury	0.005	.8553
		Neutral v aggression	7.607	.0160
		Accidental injury v aggression	7.993	.0140
	Relaxed/ Anxious	Self-mutilation v neutral	38.877	.0001
		Self-mutilation v accidental injury	20.785	.0002
		Self-mutilation v aggression	8.527	.0106
		Neutral v accidental injury	2.809	.1077
		Neutral v aggression	10.989	.0044
		Accidental injury v aggression	2.686	.1142
	Calm/ Angry	Self-mutilation v neutral	53.939	.0001
		Self-mutilation v accidental injury	49.177	.0001
		Self-mutilation v aggression	7.209	.0179
		Neutral v accidental injury	0.110	.6234
		Neutral v aggression	21.709	.0001
		Accidental injury v aggression	18.728	.0004
	Unafraid/ Afraid	Self-mutilation v neutral	24.978	.0001
		Self-mutilation v accidental injury	16.756	.0005
		Self-mutilation v aggression	16.226	.0006
		Neutral v accidental injury	0.818	.3263
		Neutral v aggression	0.940	.2999
		Accidental injury v aggression	0.004	.8836
	Happy/ Sad	Self-mutilation v neutral	63.743	.0001
		Self-mutilation v accidental injury	59.688	.0001
		Self-mutilation v aggression	39.599	.0001
		Neutral v accidental injury	0.067	.7352
		Neutral v aggression	2.860	.1009
		Accidental injury v aggression	2.054	.1563
	Normal/ Unreal	Self-mutilation v neutral	60.960	.0001
		Self-mutilation v accidental injury	35.724	.0001
		Self-mutilation v aggression	33.560	.0001
		Neutral v accidental injury	3.351	.0735
		Neutral v aggression	4.059	.0501
		Accidental injury v aggression	0.034	.8302

Relieved/ Uptight	Self-mutilation v neutral	28.186	.0001
	Self-mutilation v accidental injury	17.279	.0001
	Self-mutilation v aggression	3.385	.0680
	Neutral v accidental injury	1.328	.2513
	Neutral v aggression	12.035	.0007
	Accidental injury v aggression	5.368	.0220
Relaxed/ Tense	Self-mutilation v neutral	35.671	.0001
	Self-mutilation v accidental injury	5.491	.0354
	Self-mutilation v aggression	0.262	.5014
	Neutral v accidental injury	13.170	.0024
	Neutral v aggression	29.822	.0001
	Accidental injury v aggression	3.356	.0850
Relaxed/ Anxious	Self-mutilation v neutral	23.015	.0001
	Self-mutilation v accidental injury	4.862	.0439
	Self-mutilation v aggression	0.213	.5417
	Neutral v accidental injury	6.720	.0210
	Neutral v aggression	18.797	.0003
	Accidental injury v aggression	3.039	.0968
Calm/ Angry	Self-mutilation v neutral	36.497	.0001
	Self-mutilation v accidental injury	15.842	.0009
	Self-mutilation v aggression	0.624	.3661
	Neutral v accidental injury	4.248	.0574
	Neutral v aggression	46.663	.0001
	Accidental injury v aggression	22.752	.0001
Unafraid/ Afraid	Self-mutilation v neutral	36.395	.0001
	Self-mutilation v accidental injury	16.679	.0005
	Self-mutilation v aggression	9.933	.0116
	Neutral v accidental injury	3.798	.0672
	Neutral v aggression	8.301	.0105
	Accidental injury v aggression	0.869	.3148
Happy/ Sad	Self-mutilation v neutral	36.957	.0001
	Self-mutilation v accidental injury	51.211	.0001
	Self-mutilation v aggression	18.558	.0001
	Neutral v accidental injury	1.160	.2689
	Neutral v aggression	3.137	.0874
	Accidental injury v aggression	8.112	.0088
Normal/ Unreal	Self-mutilation v neutral	53.257	.0001
	Self-mutilation v accidental injury	5.246	.0269
	Self-mutilation v aggression	2.214	.1411
	Neutral v accidental injury	25.073	.0001
	Neutral v aggression	33.753	.0001
	Accidental injury v aggression	0.644	.4088
Relieved/ Uptight	Self-mutilation v neutral	20.902	.0001
	Self-mutilation v accidental injury	10.297	.0017
	Self-mutilation v aggression	0.199	.6563
	Neutral v accidental injury	1.857	.1752
	Neutral v aggression	17.022	.0001
	Accidental injury v aggression	7.634	.0065

Approach

Relaxed/ Tense	Self-mutilation v neutral	24.088	.0001
	Self-mutilation v accidental injury	3.587	.0769
	Self-mutilation v aggression	7.645	.0158
	Neutral v accidental injury	46.267	.0001
	Neutral v aggression	58.875	.0001
	Accidental injury v aggression	0.759	.3280
Relaxed/ Anxious	Self-mutilation v neutral	38.506	.0001
	Self-mutilation v accidental injury	34.031	.6934
	Self-mutilation v aggression	0.272	.5060
	Neutral v accidental injury	41.618	.0001
	Neutral v aggression	45.250	.0001
	Accidental injury v aggression	0.076	.6699
Calm/ Angry	Self-mutilation v neutral	32.781	.0001
	Self-mutilation v accidental injury	34.031	.6766
	Self-mutilation v aggression	10.280	.0059
	Neutral v accidental injury	35.833	.0001
	Neutral v aggression	79.775	.0001
	Accidental injury v aggression	8.677	.0104
Unafraid/ Afraid	Self-mutilation v neutral	13.772	.0014
	Self-mutilation v accidental injury	5.092	.0381
	Self-mutilation v aggression	3.548	.0753
	Neutral v accidental injury	35.612	.0001
	Neutral v aggression	3.340	.0829
	Accidental injury v aggression	17.140	.0004
Happy/ Sad	Self-mutilation v neutral	28.236	.0001
	Self-mutilation v accidental injury	7.961	.0094
	Self-mutilation v aggression	8.383	.0064
	Neutral v accidental injury	6.211	.0202
	Neutral v aggression	5.480	.0282
	Accidental injury v aggression	0.023	.8256
Normal/ Unreal	Self-mutilation v neutral	48.372	.0001
	Self-mutilation v accidental injury	1.657	.1991
	Self-mutilation v aggression	0.554	.4413
	Neutral v accidental injury	32.122	.0001
	Neutral v aggression	38.577	.0001
	Accidental injury v aggression	0.295	.5645
Relieved/ Uptight	Self-mutilation v neutral	2.048	.1547
	Self-mutilation v accidental injury	2.634	.1069
	Self-mutilation v aggression	11.357	.0010
	Neutral v accidental injury	9.327	.0027
	Neutral v aggression	23.050	.0001
	Accidental injury v aggression	3.052	.0829
Relaxed/ Tense	Self-mutilation v neutral	4.272	.0577
	Self-mutilation v accidental injury	1.019	.2760
	Self-mutilation v aggression	2.963	.1012
	Neutral v accidental injury	9.462	.0083
	Neutral v aggression	14.350	.0016
	Accidental injury v aggression	0.507	.3973

Incident

Consequence	Relaxed/ Anxious	Self-mutilation v neutral	5.437	.0348
		Self-mutilation v accidental injury	3.926	.0652
		Self-mutilation v aggression	7.152	.0178
		Neutral v accidental injury	18.604	.0004
		Neutral v aggression	25.060	.0001
		Accidental injury v aggression	0.480	.4143
	Calm/ Angry	Self-mutilation v neutral	3.774	.0702
		Self-mutilation v accidental injury	2.066	.1549
		Self-mutilation v aggression	13.953	.0017
		Neutral v accidental injury	11.424	.0040
		Neutral v aggression	32.240	.0001
		Accidental injury v aggression	5.281	.0376
	Unafraid/ Afraid	Self-mutilation v neutral	10.110	.0053
		Self-mutilation v accidental injury	1.828	.1764
		Self-mutilation v aggression	0.001	.9211
		Neutral v accidental injury	20.535	.0001
		Neutral v aggression	9.874	.0058
		Accidental injury v aggression	1.930	.1669
	Happy/ Sad	Self-mutilation v neutral	2.028	.1586
		Self-mutilation v accidental injury	0.120	.6672
		Self-mutilation v aggression	3.869	.0605
		Neutral v accidental injury	3.137	.0874
		Neutral v aggression	11.500	.0021
		Accidental injury v aggression	2.624	.1143
	Normal/ Unreal	Self-mutilation v neutral	23.751	.0001
		Self-mutilation v accidental injury	1.679	.1963
		Self-mutilation v aggression	6.164	.0169
		Neutral v accidental injury	12.801	.0008
		Neutral v aggression	5.716	.0212
		Accidental injury v aggression	1.409	.2340
	Relieved/ Uptight	Self-mutilation v neutral	1.175	.2802
		Self-mutilation v accidental injury	0.277	.5994
		Self-mutilation v aggression	0.525	.4698
		Neutral v accidental injury	2.594	.1096
		Neutral v aggression	3.272	.0727
		Accidental injury v aggression	0.039	.8432